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OBSERVATIONS ON THE NESTING OF THE DOTTEREL (*Charadrius morinellus*).

By NORMAN GILROY.

In the course of a short visit to the Grampians in the spring of the year—1922—I had a somewhat interesting experience of this charming and attractive Plover in its nesting haunts, some 3000 feet above sea level. I arrived at my centre on the evening of June 1st—a perfect summer day it had been throughout my journey, hot and cloudless. Within an hour of my arrival in Inverness-shire, however, the wind stole round to the north without warning ; an icy arctic mist crept along the valley, and at 10.30 p.m.—summer time—a thick white blanket lay on the hills almost down to the road and to the Highland Line lying at their base.

The morning broke dull and cheerless, and, except that it was dry, without a single redeeming feature. The prospect of climbing to the high tops was, to say the least of it, uninviting, and we reluctantly determined that there was nothing for it but to spend the day along the river on the lower ground. Soon after mid-day, however, the mist seemed to lighten a little, and we bore away to the foot-hills to try our luck, striking more by the labouring of chance than anything else the easiest and most gradual spur leading to the wide and commanding plateau on the summit. The points of the compass being well known to us, we had little difficulty in making the ascent, which was smooth, comfortable, and not in the least exhausting. On the other hand, it was singularly weird and mysterious, as, although the cloud was not nearly so dense as it had appeared from the road, one could not really see with certainty for more than a few yards ahead : a boulder of quite modest dimensions seemed a towering precipice ; a startled sheep a monstrous ghostly shape of unknown horror, and all the while the Ptarmigan were croaking everywhere like unseen and gigantic frogs. Once an Eagle swept past us and disappeared.

On the summit, which we reached without misadventure, it

was still and soundless ; the cloud lifted a little, gathered into curious wreaths, sank again, white and clinging, to the ground. Beyond the upper brow of the spur by which we had mounted was an apparently limitless stretch, flat, bare, and lifeless—tussocky in places, with innumerable patches of small gravelly-white stones—a desolate region of gray moss and harsh short grass.

Here we stopped for a little—took our bearings, separated, then decided it was hopeless. And at the very moment of our decision a Dotterel fluttered at my feet ! Immediately I stood quite still and looked round me. The little creature was behaving in the most piteous fashion, running backwards and forwards, all round me and sometimes actually between my feet, her wings, drenched with the mist, trailing on the ground and her beautiful white-tipped tail spread out like a fan. All the time she cried distressingly—a plaintive, querulous squeak of utter abandonment and misery.

Presently I caught sight of the eggs a yard or so from where I stood—but even before I reached them the Dotterel had settled herself quite comfortably on them, so that I had literally to lift her off.

At this point I should like to observe that, although I have throughout referred to this Dotterel as the female, I have no other reason for doing so than a purely sentimental one. The plumage was certainly very bright and the chestnut tints especially showy and definite—but I afterwards met with so many birds in which every intermediate shade occurred that I should be loth to pronounce an opinion as to the sex of a member of the species, even at close quarters, without actual dissection.

The nest was a small and very shallow depression on a flat hummock of soil almost bare of vegetation, and beyond a scrap or two of moss and a few blades of grass, which had probably drifted there accidentally, had no lining or other preparation of any kind. The flat hummock lay between two patches of the white stones before referred to, and all round it the ground seemed to have been worn or washed quite bare of growth, possibly by snow. On the whole, it was not such a " picture " as I had been led to expect, and I was to a certain extent disappointed accordingly, even although it was the first Dotterel's nest I had ever seen.

The three egg were, however, very beautiful, although to my surprise they had been incubated seven or eight days, so that

the last week of May would appear to be the right date for clutches of fresh eggs.

On subsequent visits to the high hills we found six further nests of the Dotterel, and here it may be well to observe that in one instance only was the nest on the slope below the actual summit—perhaps 150 feet; all the others were on the flats at the extreme top. In no case was the behaviour of the sitting bird at all similar to that of the first one, and it may be of interest to describe shortly how each Dotterel behaved at the nest. Of course, the weather may have affected individual birds to a certain extent, but of this I cannot speak with confidence.

The second Dotterel (I use the singular advisedly, for in no single instance did we see the pair of birds) to come under our observation was first seen running very rapidly on a smooth stretch of short, wiry grass and moss well towards the northern end of the plateau. The day—June 3rd—was fine, bright and clear, but bitterly cold, with a strongish wind from the east. We had reached the top by a steep but agreeable climb soon after 9.30 a.m., and although the Dotterel had undoubtedly caught sight of us first, I do not think she had been running about very long before I picked her up. She appeared to be feeding in a desultory fashion—always *away* from us, but always on the alert. At times she would disappear over a little ridge, only to reappear again a little further away; she was never still, and was obviously concerned. At first we thought of searching methodically for the nest itself, but soon gave up the idea and sat down to watch. Immediately the Dotterel stopped, shook herself and started running towards us! When she had come within twenty yards of us she stopped abruptly and stood quite still for nearly 12 minutes. I then decided to leave the task to my companion—and rising, I walked leisurely and conspicuously away and right out of sight over the hill. In less than a quarter of an hour I heard a whistle, and running back found my companion at the nest—the Dotterel had *flown* from the egg and disappeared!

The nest was exactly 35 yards from where we had been sitting, and about 15 yards from where I had first seen the bird, so that she must have run off it on seeing us come over the hill. As before, it was only a shallow scrape in the hard bare ground, with no lining whatever. There was, perhaps, a little more vegetation, but the three eggs were fairly conspicuous. They were rubbed a little,

showed a good deal of polish, and were, I imagine, considerably incubated.

From this point we bore away to the north-east, the ground rising very gradually to its greatest altitude—3087 feet.

On the flat directly below the Cairn—a very perfect piece of ground—we came across a little band of five Dotterels, all in remarkably bright and beautiful plumage and extremely tame. We could make nothing of these birds, but as we approached the Cairn itself, I saw a solitary bird start to run nearly 80 yards in front of us. I at first was sure it was a Golden Plover, and was only barely in time to pick it up with my glasses before it disappeared over the hill—when I saw that it was a Dotterel. I knew instinctively that she had left a nest, and walking straight to the spot at which I had first seen her, I put my stick down and found the eggs in a moment. We never saw this Dotterel again, although we were in the area for nearly an hour! The ground here was not nearly so level-surfaced, and the nest was on one of many hundreds of tussocks all of which were precisely alike. These tussocks were soft and covered with somewhat faded-looking grayish moss, and the nest was deeper than those already described, although the eggs were again fairly easy to see from a distance: they were incubated over a week.

Our next experience with the Dotterel was about two o'clock in the afternoon of the same day. We were following the plateau in a southerly direction when I caught sight of a bird disappearing amongst some tussocks of rather long, dead grass about 100 yards in front of me. There was a beautiful bit of gray, mossy ground in between, with some of the patches of white stones which are so familiar a feature of these hilltops, and, although I was very far from being certain that the bird I had seen was a Dotterel, I determined to search this likely area, which was reasonably limited in extent. After nearly an hour's methodical and patient work, however, we abandoned the search reluctantly, concluding that the disappearing bird—of which, by the way, we saw neither sign nor tidings, was either a Golden Plover or a Dunlin. I turned up a white stone as a comparatively inconspicuous landmark, and slightly enlarged the hole where I had first put down my stick, and we proceeded on our way.

It was nearly six o'clock when we turned homewards—practically back on our own footmarks, and again I saw a bird disappear

amongst the grass tussocks, this time a little to the east ; and this time I knew it was a Dotterel !

In about five minutes I found the eggs ; and how I missed them before is beyond me, for they were not 5 feet from where I had put my stick down ! This nest was singularly beautiful, well made and fairly deep. It was on a piece of flat ground, covered with pale gray moss and isolated by two patches of gravelly stones. The eggs were bright and fresh looking, but were remarkably difficult to see.

The behaviour of this Dotterel was certainly very extraordinary. Although we followed her up after finding the nest, we could not see her anywhere, and had it not been our good fortune to spot her elegant little disappearing form twice in the same area, we should assuredly not have found the nest at all.

There now remained unexplored but the southern end of the plateau, 3004 feet above the sea, harsh and bleak.

The 5th June, however, was a day of glorious sunshine, although the wind was cold, and we determined to tackle it. We made the ascent by a spur directly below its main summit, and when we were within 150 feet of the top, I was astonished to see a Dotterel rise about 30 yards to my right and skim away over the skyline. I imagined it to be a feeding bird suddenly disturbed and hurrying away, but on walking forward to the spot from which she had risen I was agreeably surprised to see a nest with two eggs very much darker and browner than any I had seen before. This flying from the nest was quite a new phase, and I was becoming a little puzzled as to the procedure to be observed with this fascinating species to obtain the best results, although I had to admit that up to the present my experience had not been unsatisfactory.

This nest was in a deep tussock of heather on the edge of a sheep track, and the actual hollow was nearly as deep as in the nest of a Golden Plover. But beyond the hollow itself there was no "nest" or extraneous material at all. Although there were only two eggs, they looked very polished and highly incubated.

More for the purpose of resting after our long climb than anything else, we sat down a few feet from this nest, and we had scarcely done so before the Dotterel came skimming back. She pitched about ten yards from us, ran about unconcernedly, picked up a morsel or two of food—probably spiders—and without hesitation settled down on her eggs. We rose and walked quietly and rather ashamedly away.

On reaching the summit we found an "annexe" as it were to the plateau—an expanse of tussocky moss of the most exquisite golden-yellow colour, and almost as soon as we got over the last ridge another Dotterel "sprang" about forty yards ahead of us. She flew very heavily, her tail spread a little and her feet hanging down. Again we walked straight to the spot, to find two eggs, the most strikingly beautiful that I have ever seen or ever hope to see. Again the nest was nothing but a very deep hollow scraped in the golden moss with no other protection or preparation. It was so bitterly cold here that we did not wait for the bird's return, but on looking at my watch I found that it was 10.25.

At the extreme south-eastern end of the plateau, and what was probably its highest point, we came across a solitary Dotterel feeding with some half-dozen Golden Plovers. On our close approach the Golden Plover took to wing, leaving the Dotterel behind, and she looked so extraordinarily conscious that we determined to watch her. In less than ten minutes, by a series of rapid runs, she had reached a stretch of bare ground which had all along held my eye, and in another two she was on her eggs! Both of us were in full view—conspicuously so—and she sat down not twenty yards from us.

This nest was on a barish ridge on the edge of a patch of yellow sand, but the sitting bird was remarkably difficult to see. On rising to go to the nest I noticed that she sat quite still for about 45 seconds. She then ran into a little hollow beyond where she remained feeding unconcernedly.

About 1 o'clock we turned back again, having explored the whole area to the east and south without seeing another Dotterel. On reaching the "golden moss" area, I saw that the second bird of the day was sitting. She was comparatively easy to see (of course we knew exactly where to look for her), notwithstanding that the nest was so deep, and only ran off when we were within a foot of her. To my astonishment and delight she now had three eggs—a really perfect set—so that to have established within an hour or so the actual time of laying was very gratifying.

The first Dotterel of the day was also sitting when we visited her fifteen minutes later, but when disturbed she only ran a few paces—she still had only two eggs, and, literally, whilst we stood there, she came back and nestled on them!

We had no further opportunity of visiting the high hills again,

but I think that in the course of a short sojourn with her we had an experience with the Dotterel which must surely be unequalled.

With the possible exception of the Greenshank, I have met with no wader in Britain which has given me one tithe of the pure pleasure and delight that the Dotterel of the remote hills has given.

NOTES ON MY EGGS OF THE ACCIPITRES.

By J. G. GORDON.

Mr. Skinner has asked me to follow up the interesting account of his fine collection of eggs of the *Fringillidæ*, which appeared in the December number of the "Record," with some notes on my Accipitres. I feel, however, that I am somewhat bold in doing so, as I can only muster 172 species and forms all told. Kirke Swann, in his "Synopsis of the Accipitres," published in 1922, enumerates no less than 682, so I have just a fourth of the known forms.

This order has always interested me especially, on account of the bold and fearless character of many species, the glorious colouring of the eggs of the Peregrines, Ospreys, etc., and the dangers and difficulties to be overcome in obtaining them. It is only since the war that I have really made an effort to specialize, but it is no easy task to get together a collection at all representative. I regret to say that there are still some clutches bearing the unsatisfactory data of the German dealers; many Indian eggs also had this fault. All these are gradually being replaced, and nothing satisfies me now but full standard data. As to preparation, I do not yet limit myself to the pinholes of our friends in the U.S.A.

The majority of the specimens have come direct from the original collectors, and they have an interest second only to those of my own taking. But in many countries eggs of this order are among the hardest to come at, and one needs a stout heart and undying hope if the collection is to grow at all. Promises are many, but the results often small, and I have sent overseas enough blowpipes and drills to stock a respectable store. On the other hand, I am much indebted to many friends, both at home and abroad, for their generosity in filling my blanks. I will now enumerate my species, with notes on the more interesting, and it will be seen at once that there are many easy things still to get, African forms being especially lacking. The arrangement and order followed is that of Kirke Swann's "Synopsis of the Accipitres,"

1922 edition, with one or two exceptions, and the same also applies to the nomenclature used.

Coragyps a. atratus (Bartr.). Black Vulture. c/2.

„ *a. brasiliensis* (Bonap.). South Am. Black Vulture. c/2.
Large finely blotched eggs from Brazil, given me by Mr. Skinner.

Cathartes aura ruficollis, Spix, Brazilian Turkey Vulture. c/1.
A single from British Guiana, rather poorly marked.

„ „ *falklandica* (Sharpe). Falkland Turkey Vulture. c/2. A handsome pair sent me by George Greenshields some years ago.

„ „ *septentrionalis* (Wied.). North Am. Turkey Vulture
Series showing considerable variety. My finest pair comes from British Columbia.

Sagittarius s. serpentarius (Miller). Secretary Bird. c/2, 2/1.
The pair show rusty stains, while the 2 singles are white.

Ægyptius monachus (Linn.). Cinereous Vulture. 3/1. An old egg of Lord Lilford's, from Spain, is well blotched. The other two from the Dobrudscha are closely covered with small speckles.

Gyps f. fulvus, Hablizl. Griffon Vulture. 4/1.

„ *f. fulvescens*, Hume. Indian Griffon Vulture. One egg from the Punjab, one of a small breeding colony on face of a cliff about 1500 feet. All the eggs in this colony were pure white.

„ *f. coprotheres* (Forst.). Kolbe's Griffon Vulture. One egg from Utrecht, Natal. Collected by Col. R. Sparrow after the Boer War.

„ *himalayensis*, Hume. Himalayan Griffon Vulture. One white egg. Collected by Col. A. E. Ward in Kashmir.

„ *i. indicus* (Scop.). Indian Long-billed Vulture. Two eggs from South India.

„ *i. pallescens*, Hume. Pallid Long-billed Vulture. Two eggs from Mysore and Kandesh. Taken by Mr. J. Davidson. The western cliff-building form.

„ *i. tenuirostris* (Hodgs.). Himalayan Long-billed Vulture. c/2 white and one finely spotted, taken in Cachar, Assam, by Mr. Stuart Baker.

Pseudogyps bengalensis (Gmel.). Indian White-backed Vulture.

A white pair from Bengal and three well-marked singles.

Torgos calvus (Scop.). Pondicherry Vulture. Three white singles, varying in size, from Samastipur.

Neophron p. percnopterus (Linn.). Egyptian Vulture. Series, none really fine, from Spain, Greece, Palestine and Morocco.

„ *p. ginginianus* (Lath.). Indian White Vulture. Series.

Polyborus plancus (Mill.). Common Caracara. 2/3.

„ *cheriway auduboni*, Cass. Audubon's Caracara. c/2.

Ibycter australis (Gmel.). Forster's Caracara. 2/2 from the Falkland Islands, one dark, the other reddish.

Milvago c. chimachima (Vieill.). Yellow-headed Caracara. c/2.
Dark eggs from Minas Geraes, Brazil, sent me by Mr. Skinner.

„ *c. chimango* (Vieill.). Chimango Caracara, fine variable series from the Argentine, mostly from Mrs. Smyth.

Circus c. cyaneus (Linn.). Hen Harrier. 2/5, c/4. The c/4 was taken in the Hebrides in 1901. The 5 is a spotted set from the Heatley Noble collection, but the locality "South Russia" makes it not above suspicion.

„ *c. hudsonius* (Linn.). American Marsh Hawk. c/4.

„ *macrourus* (S. G. Gmel.). Pallid Harrier. c/5.

„ *pygargus* (Linn.). Montagu's Harrier. 2/3.

„ *cinereus*, Vieill. Cinereus Harrier. A single.

„ *a. assimilis*, Jard. and Selby. Spotted Harrier. c/3.

„ *approximans gouldi* (Bp.). Allied Harrier. c/3.

„ *ae. aeruginosus* (Linn.). Marsh Harrier. c/6, c/3.

„ *buffoni* (Gmel.). Long-winged Harrier. c/3.

The above Harriers are much alike, only *macrourus* eggs being well marked.

Parabuteo unicinctus harrisi (Audub.). Harris's Buzzard Hawk. c/3.

Astur g. gentilis (Linn.) Common Goshawk. 2/4. Fine large white eggs from Lapland; a much smaller set from Pomerania.

„ *g. schwedowi*, Menz. Siberian Goshawk. A single, taken near Mount Fuji, Japan. Nest of sticks lined with green leaves in top of a very tall tree.

„ *g. atricapillus* (Wils.). American Goshawk. c/3.

- Astur t. tachiro* (Daud.). African Goshawk. c/2. Small hard set eggs taken by Mr. Symons in Natal.
- „ *badius dussumieri*, Temm. Shikra. 2/3.
- „ „ *poliopsis* (Hume). Hume's Shikra. c/2.
- „ *polyzonoides* (Smith). Little Barred Goshawk. c/3. Taken by Mr. Carlisle in Rhodesia.
- „ *f. fasciatus*, Vig. and Horsf. Australian Goshawk. A single.
- Accipiter n. nisus* (Linn.). Sparrow Hawk. Series. I have never met with a set of 6 here.
- „ *n. nisosimilis*, Tickell. Indian Sparrow Hawk. c/3. Rather sparsely marked eggs from Shinano, Japan.
- „ *n. teneriffae*, Laubmann. Teneriffe Sparrow Hawk. c/3.
- „ *v. velox* (Wils.). Sharp-shinned Hawk. c/3. Small Sparrow Hawk-like eggs, taken in Manitoba by Mr. A. J. Dennis.
- „ *c. cooperi* (Bp.). Cooper's Hawk. c/5.
- „ *c. mexicanus*, Swains. Mexican Cooper's Hawk. c/4.
- Erythrotriorchis r. radiatus* (Lath.). Red Buzzard. c/1. A rare egg, Buzzard-like, but little marked, from Port Darwin, Mr. C. French, Jnr.
- Heterospizias m. meridionalis* (Lath.). Red-winged Hawk. c/1. A damaged egg taken in Minas Geraes, Brazil, from Mr. Skinner.
- Buteo solitarius*, Peale. Solitary Buzzard. c/2. Eggs generally little marked, breeding in a kukui tree, in dense forest, from Hawaii.
- „ *hemilasius*, Temm. and Schl. Upland Buzzard. c/3.
- „ *japonicus*, Temm. and Schl. Japanese Buzzard. c/2.
- „ *swainsoni*, Bonap. Swainson's Buzzard. c/3, c/2.
- „ *b. buteo* (Linn.). Common Buzzard. Series. I have no 4's. The eggs vary considerably in size, few British sets are really well marked.
- „ *v. vulpinus*, Gloger. Desert Buzzard. c/3, c/2.
- „ *v. intermedius*, Menzbier. Rufous Buzzard. c/3.
- „ *f. ferox* (S. G. Gmel.). Long-legged Buzzard. c/2.
- „ *f. cirtensis* (Levaill., jnr.). Algerian Buzzard. A single.
- „ *r. rufofuscus* (Forst.). Jackal Buzzard. c/2. Large well-marked eggs, from Giantscastle, Natal, from Mr. Symons.
- „ *angur* (Rüpp.). Angur Buzzard. A single.

- Buteo b. borealis* (Gmel.). Red-tailed Hawk. Small series.
- „ *b. krideri*, Hoopes. Krider's Hawk. Small series.
- „ *b. calurus*, Cassin. Western Red-tail. Small series.
- „ *b. harlani* (Aud.). Harlan's Hawk. c/2.
- „ *b. costaricensis*, Ridg. Central American Red-tail. c/3. Large eggs, not very well marked, from Costa Rica. Nest in forest, both birds secured.
- „ *b. fumosus*, Nelson. Tres Marias Red-tail. c/3. Almost unmarked, a rare island form peculiar to Tres Marias Islands, Mexico, taken April 12th, 1919. Nest an immense pile of dry plants and seaweed on top of an old Pelican's nest.
- „ *l. lineatus* (Gmel.). Red-shouldered Hawk. Small series.
- „ *l. elegans*, Cassin. Western Red-shouldered Hawk. Small series.
- „ *l. alleni*, Ridgw. Florida Red-shouldered Hawk. c/3. A lovely set taken in Florida, 70 feet up in a flag-staff pine, by Mr. Ed. J. Court.
- „ *p. platypterus* (Vieill.). Broad-winged Hawk. c/3, c/2.
- „ *a. albonotatus*, Gray. Zone-tailed Hawk. c/4. Nest 20 feet up in a small very slender cotton-wood tree, Casa Blanca, Mexico.
- „ *albicaudatus sennetti*, Allen. Sennett's White-tailed Hawk. c/2.
- Triorchis l. lagopus* (Brünn.). Rough-legged Buzzard. c/5, 2 3.
- „ *l. pallidus* (Menzb.). Siberian Rough-legged Buzzard. A single.
- „ *l. sancti-johannis* (Gmel.). American Rough-legged Buzzard. c/2.
- „ *ferrugineus* (Licht.). Ferrugineus Rough-leg. c/2.
- Buteola brachyura* (Vieill.). Short-tailed Buzzard. c/2. Collected by Mr. Arden Edwards in the Florida swamps. Nest 45 feet up in a large cypress, standing in 7 feet of water. Has bred three years in this nest.
- Asturina p. plagiata* (Licht.). Mexican Goshawk. c/3, c/2. White eggs from Mexico.
- Gypaëtus barbatus grandis*, Storr. Bearded Vulture. Two fine richly coloured eggs, taken on the 8th January, 1913, by Dodsworth, at an elevation of 6000 feet, in the North West Himalayas.

Uroaëtus audax (Lath.). Wedge-tailed Eagle. 3/2. An especially handsome pair, sent me by Mr. Rowland Archer; comes from N. S. Wales. Nest 30 feet up in a white box tree.

„ *a. carteri*, Matthews. Western Wedge-tailed Eagle. c/2. This West Australian form separated by Matthews, on seemingly slight grounds, is not recognised by Kirke Swann.

Aquila c. chrysaetos (Linn.). Golden Eagle. c/3, c/2.

„ *c. occidentalis*, Olphe-Galliard. Spanish Golden Eagle. c/2.

„ *heliaca*, Savigny. Imperial Eagle. 3/2. Two of these sets sent me direct by Dr. Paul Leverkühn were taken by him in Bulgaria, and his difficulty in finding a way into one of the nests is very amusingly described. He “perforated the nest,” with his head and took the contents, “two eggs much bred!”

„ *adalberti*, Brehm. White-shouldered Eagle. A single.

„ *n. orientalis*, Cab. Western Steppe Eagle. 2/3, c/2. The 2/3 from Transcaspia are very poorly marked.

„ *r. rapax* (Temm.). Tawny Eagle. A single well-spotted egg taken by Mr. C. Wiggins at Kyague, Uganda, on September 15th, 1910.

„ *r. vindhiana*, Frankl. Indian Tawny Eagle. c/2, 3/1.

„ *clanga*, Pall. Greater Spotted Eagle. 2/3.

„ *p. pomarina*, Brehm. Lesser Spotted Eagle. c/2, c/1. The latter a very fine egg, taken by F. A. Cerva in Hungary; nest in an old beech tree.

„ *p. hactata* (Less.). Long-legged Eagle. A single.

Hieraëtus f. fasciatus (Vieill.). Bonelli's Eagle. One egg.

„ *pennatus* (Gmel.). Booted Eagle. c/2, c/1.

„ *morphnoides* (Gould). Little Eagle. c/1. Seldom lays two eggs. Nest out on horizontal branch of a gum tree, 35 feet up; from Mr. Orton, West Australia.

Spizaëtus n. kelaarti, Legge. Mountain Hawk Eagle. c/1. Taken by Mr. J. Stewart in Travancore; nest repaired annually for many years; one egg always, a very rare egg.

„ *c. cirrhatus* (Gmel.). Indian Hawk Eagle. 2/1. White eggs; one taken by Mr. Stewart in Travancore, the other in Deccan by Col. R. Sparrow.

Spizaetus c. limnaetus (Horsf.) Changeable Hawk Eagle. c/1.
Taken at Chota Nagpore by W. H. Irvine, given me by Mr. J. Davidson.

Circaetus gallicus (Gmel.). Short-toed Eagle. c/1.

Haliaetus a. albicilla (Linn.). White-tailed Eagle. c/2.

„ *l. leucocephalus* (Linn.). Bald Eagle. c/1. From coast of North Carolina ; nest situated 75 feet up in a giant sycamore.

„ *l. atascanus*, C. H. Townsend. Northern Bald Eagle. c/1. A small egg from Lake Osogoos, British Columbia ; taken by Mr. C. de B. Green ; nest near top of a large pine.

Cuncuma leucogaster (Gmel.). White-bellied Sea Eagle. c/2, c/1.
The two eggs taken at Kanora, India, by Mr. J. Davidson, the single from Cullen Island, North Queensland ; nest a great pile of sticks and seaweed on a rocky point.

„ *leucorypha* (Pall.). Pallas' Sea Eagle. c/3, c/2. Threes are not common ; this one was taken by H. G. Barnes in Sind ; nest a huge pile of sticks in tree.

Polioaetus ichthyaetus (Horsf.). White-tailed Fishing Eagle. c/1.
A white egg, taken by Otto Müller in Bengal.

„ *h. humilis* (Müll. and Schl.). Malayan Fishing Eagle. c/2. From Mr. C. Hopwood's collection.

Haliastur i. indus (Bodd.). Brahminy Kite. c/3, 2/2.

„ *i. leucosternus* (Gould). White-headed Sea Eagle. c/2.
Nest a large structure of sticks, 27 feet up in a mangrove tree, from North Queensland.

„ *s. sphenurus* (Vieill.). Whistling Eagle. 2/3.

Butastur teesa (Frankl.). White-eyed Buzzard Hawk. 2/2.

„ *liventer* (Temm.). Ashy Buzzard Hawk. One egg. This is a rare egg, from Mr. C. Hopwood's collection.

„ *indicus* (Gmel.). Eastern Buzzard Hawk. A single from Japan.

Elanoides f. forficatus (Linn.). Swallow-tailed Kite. A single egg, marked with small yellowish spots. Taken by F. J. Pember on May 8, 1891, at Columbus, Texas ; nest of twigs 40 feet up on top limb of a cotton-wood.

Milvus m. milvus (Linn.). Common Red Kite. c/3, c/2, c/1.
The single is an old British egg taken in 1863.

„ *m. migrans* (Bodd.). Black Kite. c/3, c/2.

- Milvus m. aegyptius* (Gmel.). Egyptian Kite. c/4, 2/2. Two is the usual clutch. The four very similar eggs are from Col. Hanbury Barclay's collection, taken at Damietta. The 2's were taken by Col. R. Sparrow at Abbassia.
- .. *m. govinda*, Sykes. Indian Kite. Series. From India. These eggs seem to vary very much in size, unless they are confused with *lineatus* at times.
- .. *m. affinis*, Gould. Allied Kite. c/2. Rather poorly marked. Taken near Port Darwin on May 25, 1902.
- .. *lineatus* (Gray). Black-eared Kite. 3/2, 1/2, are large eggs taken by Mr. La Touche at Foo-chow, China. The other pairs, very much smaller eggs, were taken by Mr. D. Macdonald near Gyantse, Tibet; elevation 12,000 feet. Sent me by Mr. Stuart Baker.
- Rostrhamus s. sociabilis* (Vieill.). Southern Everglade Kite. c/3. Like large well-marked Sparrow Hawk's, taken by Mrs. Smyth, at Cachari, Argentine, on December 1, 1915. A slight nest of reeds; birds nesting in small colony in reedy lagoon.
- Elanus c. coeruleus* (Désf.). African Black-winged Kite. c/4, c/3. Two fine sets, taken by Mr. Symons in Natal; nest of twigs lined with green leaves.
- .. *c. vociferus* (Latham). Indian Black-winged Kite. c/2. Two very different eggs, taken by C. M. Ingles in Tirhoot.
- .. *l. majusculus*, Bangs and Penard. White-tailed Kite. c/2. Two very handsome eggs, one elongated, from Sacramento co., Calif. The third set from the same nest.
- Ictinia plumbea* (Gmel.). Plumbeous Kite. c/1. A damaged egg from Minas Geraes, Brazil, sent me by Mr. Skinner; it shows signs of dark marking. Am not certain of its identity; it seems small for this species.
- .. *mississippiensis* (Wils.). Mississippi Kite. c/2, c/1. White eggs. Second sets almost always consist of one egg.
- Baza leuphotis* (Dumont). Crested Cuckoo Falcon. c/1. Egg, white, from Darjiling, from Mr. Stuart Baker.
- Pernis apivorus* (Linn.). Honey Buzzard. c/2. A lovely dark set from Sweden.
- .. *cristatus ruficollis*, Less. Indian Crested Pern. c/2. Reddish eggs taken by Dr. H. N. Coltart, at Samastipur; nest of sticks lined with green leaves.

- Falco s. subbuteo*, Linn. Hobby. 3/3. All European eggs from Holland and Germany.
- „ *s. centralasic* (Buturl.). Central Asian Hobby. c/2. Eggs laid in old nest of one of the *Corvidæ*, ♀ shot; elevation 8000 feet, Kashmir. Collected for Col. Rattray and sent me by Mr. Stuart Baker, who wrote: "these eggs are extraordinarily rare in collections. I have only two sets after 35 years' collecting."
- „ *eleonoraæ*, Gené. Elonora's Falcon. c/2. Old eggs taken in the Cyclades on August 7, 1874; from Dr. Krüper.
- „ *hypoleucus*, Gould. Grey Falcon. c/2. From Central Australia; nest in a small tree, at edge of lake.
- „ *c. chicquera*, Daud. Red-headed Merlin. c/2.
- „ *c. columbarius*, Linn. Pigeon Hawk. A single.
- „ *c. regulus*, Pallas. Common Merlin. Fine series.
- „ *c. alfred-edmundi*, Kleinschmidt. Iceland Merlin. Series. I only took two sets in Iceland myself: they are mostly rock nesters there. Have one lovely white and red mottled set, which would certainly be taken for Kestrel here.
- „ *c. insignis* (Clark). Asiatic Merlin. c/3, c/1. Taken near Teheran, Persia, and sent me by Mr. H. W. Maclean.
- „ *v. vespertinus*, Linn. Red-footed Falcon. 2/4.
- „ *p. peregrinus*, Tunst. Peregrine Falcon. Fine series.
- „ *p. calidus*, Lath. Siberian Peregrine. A single.
- „ *p. anatum*, Bp. American Peregrine. A single.
- „ *p. pealei*, Ridgw. Peale's Falcon. c/2. A rare egg in collections. Mine were taken by Mr. C. de B. Green at Langara Island, British Columbia, on April 20, 1915. See "Ibis," Vol. IV, No. 3, p. 473, 1916. They resemble dark Peregrine's.
- „ *p. peregrinator*, Sund. Indian Peregrine Falcon. A single.
- „ *b. erlangeri*, Kleinschm. North African Lanner. c/3. Taken on April 13, 1913, near Ain Tartra Wèll, South Algeria, by Mr. R. J. F. Rakowski's expedition; nest on a low R'tem bush on sandhills.
- „ *b. feldeggii*, Schleg. European Lanner. c/2.
- „ *c. cheirug*, Gray. Saker Falcon. c/3.
- „ *jugger*, Gray. Lagger Falcon. c/4, c/2.
- „ *mexicanus*, Schleg. Prairie Falcon. c/5, c/4. The 5 is a darkish set with a purple tinge. The 4 of a light yellowish

type. Both are taken on earthy ledges on big cliffs in California and New Mexico.

Falco r. rusticolus, Linn. Norwegian Gyrfalcon. c/4. Taken by Dr. Bjorkborn, near Hetta, Lapland; eggs laid in old Raven's nest on ledge of cliff.

„ *r. islandus*, Brünnich. Iceland Falcon. Fine series. My only 5 was taken on April 24, 1904, by Paul Thorarinsson, in North Iceland. Nest in crevice of high rocks above a river. An egg in one of the 4's is nearly white. I like the red and white mottled type best. A 4 comes from the Belga Mountains.

„ *r. candicans*, Gmel. Greenland Falcon. c/3. Eggs laid in an old Raven's nest on rocks, Ponds Bay, Baffinland.

Rhynchofalco f. septentrionalis, Todd. Northern Aplomado Falcon. c/4. Nest on a dagger plant, 18 feet from ground, on prairie. From Texas.

Ieracidea b. herigora (Vigors and Horst.). Striped Brown Hawk. c/3. Nest in a small gum tree. From South Australia.

„ *b. occidentalis* Gould. Western Brown Hawk. c/2. Taken by Mr. Orton at Moora, West Australia; eggs laid in an old Raven's nest.

Cerchneis t. tinnunculus (Linn.). Common Kestrel. Fine series. From Britain, France, Germany, Lapland, Spain and Cyprus.

„ *t. rupicolaeformis* (Brehm.). Egyptian Kestrel. c/2.

„ *t. canariensis*, Koenig. Canarian Kestrel. c/3. Taken by E. T. Kennedy on April 14, 1893, at Teneriffe.

„ *t. japonicus* (Temm. and Schleg.). Japanese Kestrel. c/2. Eggs in hole on steep hillside. From Shinano, Japan.

„ *t. interstinctus*, McClelland. Eastern Kestrel. c/3. Eggs from Teheran, Persia, sent by Mr. H. W. Maclean. Mr. Stuart Baker named them as above, but they probably come under *tinnunculus* now.

„ *t. rupicolus* (Daud.). South African Kestrel. c/3, 3/2.

„ *c. cenchroides* (Vig. and Horsf.). Nankeen Kestrel. c/2.

„ *r. rupicoloides*, (Smith). Larger African Kestrel. c/4. Collected by Mr. R. H. Ivy near Grahamstown.

„ *newtoni* (Gurney). Madagascar Kestrel. A single. The sole survivor of three eggs taken by F. Sikora at Andrangoloaka; nest in a hole in a tree.

- Cerchneis n. naumannii* (Fleischer). Lesser Kestrel. A series. From the Danube, Spain, Greece, the Crimea, Cyprus, and Persia ; but I lack the bright red type.
- „ *s. sparverius* (Linn.). American Kestrel. 2/4.
- „ *s. phalaena* (Lesson). Western Kestrel. Fine series. From California, light and reddish eggs ; a set from British Columbia is much more boldly blotched.
- „ *s. peninsularis* (Mearns). Lower Californian Kestrel. 2/5. Two fine sets from Mr. Arden Edwards. It is not common and nests in holes in dead cactus, never in the rocks.
- „ *s. paulus*, Howe and King. Florida Kestrel. c/4. This form is restricted to Florida ; nest in a cavity 15 feet up in a dead pine. From Mr. Ed. J. Court.
- „ *c. cinnamominus* (Swains). Cinnamon Kestrel. c/3. Eggs laid in a hole in a tree. From the Argentine ; sent by Dr. Roberto Dabbene.
- „ *c. australis* (Ridgw.). Brazilian Kestrel. 2/2. From Minas Geraes, Brazil ; sent me by Mr. Skinner.
- Pandion h. haliaetus* (Linn.). Common Osprey. c/3, c/2, 2/1. I am poorly represented in the typical form. A single old Scotch egg. The c/2 is from the Red Sea.
- „ *h. carolinensis* (Gmel.). American Osprey. Very fine series, including three 4's. From New York, Maryland and Virginia. This is one of the handsomest eggs, I always think.
- „ *h. cristatus* (Vieill.). White-headed Osprey. c/3, c/2. The c/3 has an egg of a very different type, which Mr. Archer tells me is often the case. They come from the Barrier Reef and the nest was a big structure of sticks in the top of a johnson pine. The c/2 comes from near Mackay Island and the nest was a large heap of sticks placed on the rocks. These eggs are of a dull dirty hue.

NOTE.—Mr. Gordon's collection will, by the time this is in print, include 2 more species, *Astur magnirostris* and *Falco albigularis*, described on another page.

January 23rd, 1923.

Mr. Kenneth L. Skinner, Weybridge, England,

Ed. "Oologists' Record."

DEAR SIR,

I have read Mr. Edgar Chance's challenge or wager regarding the manner of deposition of eggs by Cuckoos or other parasitic birds, either direct from the oviduct or by depositing by means of the beak after laying the egg outside the nest of its victim.

Especially gathering data on behaviour and relationship of birds through studies of Oology for the past forty years has enabled me to follow the habits of the American Cowbird (*Molothrus ater*) rather closely, and am a little surprised to find the bird's mode of deposition of eggs very much disputed. Speaking of the finding of Cowbirds' eggs in such nests as Parula Warbler, Bendire says: "It is possible that the egg is dropped in the nest with the beak." Such may be the case in rare instances, but it is more probable that where the parasitic egg is found in a Parula's nest it is one of the more open-entrance type of nest frequently constructed by this bird. The only nest of the Parula Warbler I ever found in this section contained a Cowbird's egg along with the two of the Warbler; but in this case the entrance to the nest was almost on top of the structure, and on the whole, about as easy of access to the parasitic bird as a nest of the Orchard Oriole.

I am enclosing a short article giving, briefly, some of my experiences with the egg layings of the Cowbird. I do not know whether this is of any value to your publication, or whether it is against your rule to publish articles of this nature from America, but I send it for your consideration. Very extensive additions could be added giving more of my experiences, and if I should take the time to go thoroughly through our records, undoubtedly other and more interesting data could be cited. As I write, it comes to me that I should have added the Blue-grey Gnatcatcher to the list of species from which I have flushed female Cowbirds. Nests of the Gnatcatcher, being of soft, downy substances, always showed signs of the Cowbird having sat upon the entire top of the same, as the rim was always "mussed" up and torn.

Yours very truly,

J. WARREN JACOBS.

[We gladly publish Mr. Jacobs' article.—EDITOR.]

COWBIRD (*Molothrus ater ater*) LAYS EGGS DIRECT FROM OVIDUCT INTO THE NEST OF ITS VICTIM.

By J. WARREN JACOBS, *Director, Museum of Applied Oology,*
Waynesburg, Pa.

I will not stake a wager on the statement that the Cowbird *always* lays its eggs direct from the oviduct into the nest of its victim; but my experience with the egg deposition of this bird leads me into the firm belief that this is their accustomed way—possibly their only way!

In the first place, the hundreds of nests of other birds in which I have found eggs of the Cowbird, were all of a character of easy access to the parasitic species. Exceptional cases, however, were nests of the Tufted Titmouse, Bluebird and White-bellied Nuthatch, but with each of these the Cowbird could have entered for laying its eggs more easily by expulsion from the oviduct than by carrying in the beak.

In the second place, the short, narrow, hard and straight bill of the Cowbird is not capable of retaining an uncrushed egg while the bird's body undergoes the physical exertion necessary to enter some nests.

I have found several nests of Bluebird in which the Cowbird had laid eggs, but I could insert my hand in any of the openings, and the nests were, as a rule, on a level with the entrance. Once an egg was found in a nest of the White-breasted Nuthatch, in a natural knothole in an oak tree, but this nest was level with the entrance, and the entrance itself, was large enough to admit the Cowbird.

The most remarkable case is that of a nest of a Tufted Titmouse, found May 7th, 1887, 18 inches deep, in which was a Cowbird's egg with those of the rightful owner; but in this case, the cavity was straight down in the top of a small oak stub, and I had no difficulty in inserting my arm.

My experience with this bird in open nests, where it was actually seen and watched, is briefly stated in the following cases:—

Scarlet Tanager, Phoebe, Yellow-breasted Chat, Louisiana Water-Thrush and Kentucky Warbler: actually flushed Cowbirds from all these nests.

Worm-eating Warbler: after removing nest and eggs of this.

bird, which also contained an egg of the Cowbird, I was attracted by the Worm-eaters attacking a Cowbird on the opposite side of the ravine. The Cowbird was on the ground and coming toward me as I sat near the nest-site. I moved farther away. The Cowbird continued to approach the nest-site, and seemingly in bewilderment, examined the pocket in the side of the bank from which I had just removed the nest. Undoubtedly, a bird on its way to deposit a second egg, but it carried no egg in its beak.

Louisiana Water-Thrush : watched a female Cowbird enter a nest of this bird, turn round and remain in half standing position for several minutes. With the four eggs of the Water-Thrush was one laid by the Cowbird.

Kentucky Warbler : the most interesting case I have.

On June 1st, 1907, I found an exposed nest of this Warbler in a clump of mayapple plants in undergrowth woods on hillside, and containing two eggs of the owner and one of the parasite. On June 4th, as I approached on my second visit, I heard both old Kentuckys chirping excitedly. In nearing the nest-site I had to cross a fence, and while at this elevation I could see the nest surroundings, 30 feet away, and there upon the ground was a Cowbird walking about after the manner of a Crow. The Kentuckys were not attacking, but mere scolding from the lower tree branches. The Cowbird espied me and passed beneath the foliage, out of sight but the opportunity to observe its further doings was accepted by me. Backing off the fence, but not obscuring the nest with a small space of surroundings, I awaited the return of the skulking Cowbird, which was nearly forestalled by the old Kentucky going upon the nest. Her anxiety, however, was more toward me than the hiding Cowbird, so I was offered the opportunity of seeing the Cowbird again come into sight, and after searching about uneasily found the nest and hopping upon the edge walked across the brim, then she turned round and seemed to settle well down into the nest.

Quietly leaving my position to locate the nest of an anxious Hummingbird, I was absent about ten minutes, but upon my return saw that the Cowbird was still on the nest. A moment later I climbed upon the fence, whereupon the Cowbird left and flew off through the thicket. Five eggs of the Warbler and two of the Cowbird were in the nest. The eggs of the latter are quite similar, except that one has the majority of the markings on the larger end, while its companion is marked chiefly on the smaller.

Frequently eggs of the rightful owner, and occasionally one or more of the parasitic eggs, showed damage by birds' beak ; and some of these were in the nest as well as some tossed out upon the ground by either the Cowbird or rightful owner.

NOTES ON SOME EGGS FROM BRAZIL.

By THE EDITOR.

A box of eggs just received from the State of Minas, Brazil, contains a few things worth recording.

In a series of ten sets of the Tico-tico or Chingolo Bunting, *Brachyspiza pileata* (Bodd.), only one set had escaped the attention of the local race of Cowbird, *Molothrus bonariensis* (Gm.). Two sets each contain three Cowbird's eggs and five sets each contain two. In some cases a Cowbird seems to have laid twice in the same nest, but in one case of three all appear to be from different birds. The erythristic type of Cowbird egg is well represented in this series.

The Cowbird also victimizes *Coryphospingus cucullatus*, one set out of three containing two Cowbirds' eggs.

A set of three eggs attributed to *Cyanocompsa cyanea* (L.), a new Finch egg for our collection, are some of the most beautiful eggs we have seen. They are deeply marked with warm brick-red at the larger ends, the colour being thickest there and shading off to mere splashes at the smaller end. Holding them to the light, we can detect no suspicion of green or blue ; yet Nehrkorn, who had an egg laid in captivity, describes them as bluish grey with fine grey markings over the whole surface. He gives the measurements as 22.5×15 mm., while the three eggs just received are approximately 24×18 , 24×17 and 23×17 mm. respectively. We must try and secure a skin for certain identification.

There is a fine pair of *Polyborus tharus*, with pin-hole bores, while two pairs of *Catharistes atratus brasiliensis* each contain a finely marked specimen, one being exceptional in this respect, but the second egg of each set is poorly marked. Two sets of *Milvago chimachima* recall some types of the Honey Buzzard.

A c/2 of *Astur magnirostris* was found in September in a tree very hard to climb. They are very oval in shape and very stained, possibly from nest material. No doubt, originally they were dirty white with scattered umber markings at one end. Approximate measurements, 45×37 and 44×36 mm.

A single egg of *Falco albigularis* is approximately 37×30 mm. In general appearance it is like a well-marked, but faded, egg of the European Sparrow Hawk, showing large patches of subdued purplish under-markings and smaller rufous marks on the surface.

SOME SCARCE FINCH EGGS.

By THE EDITOR.

From Mr. Carlisle we have received some very rare Finch sets, some of them, we think, the only sets known.

A set of three Rendall's Seed Eater, *Anomalospiza imberbis*, (Cab.), taken on the Strathmore Ranch near Buluwayo on March 20, 1920, are very pale blue with a very few distinct spots, chiefly on the larger half, of dark umber and black. The spots are very small, but it is their sharpness or distinctness which lends such character to the eggs. Approximate measurements 19.5×13 , 18×13 and 19×13 mm.

Sets of Sharpe's Seed Eater, *Serinus sharpei*, Neum., and the Rhodesian Streaky-headed Seed Eater, *Poliospiza mennelli*, Chubb, though rare, do not differ greatly from eggs of other members of this genus. The latter were collected at Thaba N'chu in the Free State.

We did not expect Mr. Carlisle to send us *Emberiza major*, but we welcomed a pair collected on his ranch. The species has been already described by Mr. Belcher in our pages, but we would like to add that, on first sight, they appear to be a large edition of the beautiful *Emberiza flaviventris*, of which, thanks to Mr. Carlisle, we have now a series of nine pairs. If anything, the larger egg, at least in the pair under notice, has fewer hair lines in its wreath of marks and more blotches and spots.

Perhaps the most interesting eggs from Mr. Carlisle were a three set of *Emberiza capensis media*, Sharpe, which are so different from any other Bunting's we know. One egg is like one type of the Tawny Pipit, while the other two closely resemble one type of egg of the Calandra Lark. Approximate measurements are 22.5×16.5 , 21.5×16 and 22×17 mm.

From another source we have secured an egg of the rare *Emberiza castaneiceps*, Moore, found in the Altai Mountains on June 10, 1910. It measures approximately 20.2×15.8 mm., and closely resembles some types of *E. citrinella*. On a ground colour, more or less suffused with shell markings, it has a straggly line of scribbings

running almost all round the centre of the egg, and another wisp of such lines running up over the large end. Nehrkorn, who had an egg from the Baikal District, dismisses it as "like *E. cia*," but we have only one set in a large series of *E. cia* where the colour of the markings is the same and the character of the markings is different from our *E. cia*. From the same source, we had a set of *Emberiza cia par*, taken in Tianshan on May 3, 1908, one of which has a wonderful zone of markings round the centre of the egg and the large end quite clear.

The California Academy of Sciences at San Francisco was so good as to let us have a set of the very rare *marked* type of *Leucosticte griseinucha* from St. George Island, Alaska. It is a beautifully prepared set of five, and though the light-brown markings are very indistinct, we are exceedingly pleased to have this one set of marked eggs in a genus whose eggs, throughout the old and new worlds, are uniformly pure white. The Academy was also able to spare us two sets of *Geospiza fuliginosa* and one set of *Geospiza fortis*, both, of course, from the Galapagos. These eggs have been fully described elsewhere.

We acquired an exceptionally fine pair of *Perissospiza icteroides* from Mr. Hopwood's collection. Though typical in all other respects, they were unique as to size, and measure approximately $29 \cdot 30 \times 20 \cdot 30$ and $30 \cdot 30 \times 20 \cdot 15$ mm.

Only a coloured plate would do justice to a set of five *Emberiza citrinella* received from Germany. They have lilac under-markings, but they all have wonderful large blotches of warm reddish chestnut colour of varying intensity and, here and there, a straggly black scrawl. With all this, however, they could never be taken for any other species.

The above additions, with others, have carried our collection to over 300 species of Finches.

THE OOLOGISTS' RECORD.

Edited by KENNETH L. SKINNER.

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[June 1, 1923.]

NOTES ON THE GORDON COLLECTION OF EGGS OF THE ACCIPITRES:

By H. KIRKE SWANN.

The very interesting account of his collection given by Mr. Gordon in the March number of "The Oologists' Record" tempts me to add some supplementary remarks, principally on rare eggs in my own collection and eggs which Mr. Gordon does not possess. Mr. Gordon's and my own are the only two important collections of eggs of the Accipitres outside the Museums, and I believe I am the only collector confining himself entirely to the Accipitres.

Mr. Gordon states he has 172 forms all told, plus two additional mentioned by the Editor, and minus one inserted in error. I have at present 170 forms, but, although I possess a great many more eggs than Mr. Gordon, I have only 36 forms he has not got, while I lack 38 of those he possesses.

Our united collections, therefore, contain the eggs of 208 forms of Accipitres. The British Museum collection contains the eggs of at least 45 forms not represented in either of our collections. Tring Museum, out of a total of about 150 forms, has about 40 I do not possess, but a number of these are included in the British Museum figure. I have over 50 forms myself not represented at Tring.

There are also a few additional known eggs in the Norris and other collections, as well as in the American and other foreign museums. Therefore we may conclude that the eggs of not more than 300 forms are known out of the total of 682 I enumerate. I will now proceed with a few remarks on the eggs in my own collection that are especially worthy of note. Those marked with an asterisk (*) are not represented in the Gordon collection.

**Gymnogyps californianus*. Californian Condor. c/1. From the Mexican border. The known eggs are very few in number.

Egyptius monachus. Cinereous Vulture. 6/1. The largest and most handsome of my eggs are from Semiretschje-gebiet, Kuldscha, Asia, but I have a smaller egg, taken by Howard Saunders at

Segovia, Spain, which is heavily marked. The finest series in existence of these eggs is that in the Tring Museum, which possesses 55 eggs.

Gyps indicus pallescens. Indian Long-billed Vulture. This is a synonym of *G. indicus indicus* and reduces Mr. Gordon's total by one. There are only two forms of this species, but he enumerates three.

**Pseudogyps africanus fuelleborni*. Southern White-backed Vulture. c/1. Kromdraai, Orange River Colony. Probably the only known egg of this form.

**Torgos tracheliotus tracheliotus*. Sociable Vulture. c/1. Cape Colony.

Neophron percnopterus percnopterus. Egyptian Vulture. 8/2. Chiefly taken by myself in Spain and showing all variations.

**Polyborus lutosus*. Guadaloupe Caracara. c/1. The only known egg of this extinct species, taken on the island by W. More, April 17th, 1897. The nest was a huge affair of sticks on top of a pile of rubbish and cacti; only two pair of birds were seen, and the ♀ of this pair was shot. The egg resembles a pale egg of *P. cheriway auduboni*, but is rather smaller, size 54×42 mm. It has a whitish ground rather heavily spotted and blotched with dark reddish-brown.

**Circus melanolenaus*. Pied Harrier. Single, from Amur.

**Circus ranivorus*. South African Marsh Harrier. c/4. Natal. The eggs are very like those of the next form.

**Circus æruginosus harterti*. Hartert's Harrier. c/4. Coria, S. Spain, taken by myself. Smaller than eggs of *C. æ. æruginosus* and much nest-soiled.

**Circus maurus*. Black Harrier. c/3. Riet-vley, Hamansdorp, S. Africa. Nest built in the rushes, of twigs and grass. Eggs smallish, resembling in size and appearance those of *C. cyaneus cyaneus*.

**Melierax musicus musicus*. Chanting Goshawk. c/2. Mafeking. Bechuanaland. Nest in a thorn tree of sticks and twigs. In size and appearance eggs much resemble those of *Astur gentilis gentilis*.

**Astur badius badius*. Ceylonese Shikra. c/3. Travancore, S. India.

**Accipiter nisus melanoschistus*. Himalayan Sparrow-Hawk. c/3. From Simla Hills, N.W. India; taken by P. Dodsworth; handsomely marked eggs.

- **Accipiter virgatus besra*. Besra Sparrow-Hawk. c/4. Marked with pale clay-coloured smudges ; no distinct markings.
- **Heterospizias meridionalis australis*. Southern Red-winged Hawk. c/2, c/1. Argentina. The eggs resemble those of *Astur* instead of *Buteo*.
- Buteo solitarius*. Solitary Buzzard. c/2. Very rare eggs in collections.
- Buteo buteo buteo*. Common Buzzard. My large series includes one 4 well-marked from Argyllshire and another 4 from Finland. I have some very well-marked British sets.
- Buteo albonotatus albonotatus*. Zone-tailed Hawk. I also possess a set of these rare eggs from Chiapio, Mexico.
- **Buteo erythronotus erythronotus*. Red-backed Buzzard. c/1. Falkland Islands.
- Triorchis lagopus sancti-johannis*. American Rough-legged Buzzard. Five eggs appear to be a common clutch ; I possess three sets of 5 from Labrador.
- Buteola brachyura*. Short-tailed Buzzard. I also possess a set of these rare eggs from the same nest as Mr. Gordon's.
- **Urubitinga urubitinga urubitinga*. Brazilian Eagle. c/1. Taken at Manchelá, prov. of Tucuman, Argentina, October 30th, 1922. I do not know of another egg of this species.
- **Urubitinga anthracina anthracina*. Mexican Black Hawk. c 2. Chiahuhua, Mexico. Nest of sticks, 27 feet up in a tall cottonwood tree, in a small cañon.
- Gypaëtus barbatus grandis*. Bearded Vulture. c/2, 2 1. India. I do not possess European eggs.
- Aquila chrysaëtos chrysaëtos*. Golden Eagle. Sets of 3 are rare, but I also possess one set of 3 in my series, from Finland.
- **Aquila chrysaëtos daphanea*. Himalayan Golden Eagle. c 1. Altai Mountains. Larger than eggs of *A. c. chrysaëtos*.
- **Aquila chrysaëtos canadensis*. American Golden Eagle. 2 2. California, and also a set of 3 from Texas.
- Aquila heliaca*. Imperial Eagle. One egg in my series, from Punjab, India, is very much smaller than any of the others, but is certified by Hume, who had the ♀ bird (*vide* "Rough Notes," p. 142).
- Aquila adalberti*. White-shouldered Eagle. 2 2. Spain. Both sets are much more heavily marked than eggs of *A. heliaca*, from which I consider this bird is specifically distinct.

- **Aquila nipalensis nipalensis*. Eastern Steppe Eagle. c/3. Altai Mountains.
- Aquila rapax rapax*. Tawny Eagle. c/2. Cape Colony. These are rare eggs.
- **Aquila rapax albicans*. Rüppell's Tawny Eagle. c/2. Lahej, S. Arabia; nest in a high mango tree. The eggs much resemble those of *A. r. rapax*, but are a trifle larger and more elongated.
- Aquila pomarina pomarina*. Lesser Spotted Eagle. c/3, 4/2. All the eggs in my series are heavily marked, much more so than those of *A. clanga*.
- Aquila pomarina hastata*. Long-legged Eagle. I also only possess two singles. Eggs of this species are rare.
- Hieraetus fasciatus fasciatus*. Bonelli's Eagle. 2/2, c/1. Spain. It is fairly common in S. Spain, but I only obtained the single egg myself.
- Hieraetus pennatus*. Booted Eagle. In my series is a single from Hurroor, Salem Dist., India, certified by Hume, which is quite heavily marked with reddish-brown spots and blotches (*vide* Hume's "Rough Notes," p. 186).
- **Lophotriorchis kieneri*. Kiener's Crested Eagle. c/1. Travancore, S. India. Very rare.
- **Ictinaetus malayensis perniger*. Indian Black Eagle. c/1 (full set). From Dunga-gali, Murree Hills, India, August 4th, 1904; taken by Col. R. H. Rattray and described in "Bombay N. H. Soc. Jnl.," XVI, p. 662.
- Spizaetus cirrhatus cirrhatus*. 2/1. From India.
- **Spizaetus cirrhatus ceylonensis*. Ceylonese Hawk Eagle. c/2. Travancore.
- **Spizaetus coronatus*. Crowned Hawk-Eagle. c/2. Spitzkop, Karkloof Range, Natal, July 18th, 1917, from a huge nest of sticks, 60 ft. up in the fork of a monster yellow-wood tree, nearly 5 ft. in diameter. About 40-50 dog spikes had to be used to get to the nest.
- Spizaetus nipalensis kelaarti*. Mountain Hawk Eagle. I have also an egg of this species from Travancore, a locality I did not give in my "Synopsis."
- Circaetus gallicus*. Short-toed Eagle. 3/1. S. Spain. One nest taken by myself was in the top of a pine tree, but they are generally in cork-oaks.

- **Spilornis cheela albidus*. Lesser Serpent Eagle. c/1, c/1 (full sets). From S. India. Very rare in collections; one egg is handsomely marked, the other white.
- **Spilornis cheela spilogaster*. Ceylon Serpent Eagle. c/1. Travancore, S. India. A very rare egg.
- **Haliaeetus albicilla groenlandicus*. Greenland White-tailed Eagle. 2/1. A larger egg than in the European form.
- Elanoides forficatus forficatus*. Swallow-tailed Kite. c/2. Lincoln Co., New Mexico, May 13th, 1890; nest was also in a cotton wood tree.
- **Milvus migrans arabicus*. Arabian Kite. 3/2. S. Arabia. Eggs are smaller and more richly marked than those of *M. m. ægyptius*.
- Milvus lineatus*. Black-eared Kite. Five eggs from China comprise clutches of 3 and 2 successively laid in the same nest, a most beautiful and interesting set.
- **Rostrhamus sociabilis plumbeus*. Northern Everglade Kite. c/3. Florida. Nest of sticks and weed stalks, lined with dead leaves, in low bush overgrown with vines. Extremely rare and beautiful eggs.
- Elanus leucurus majusculus*. White-tailed Kite. I have a beautiful set of 4 from California. Rare eggs in collections.
- Baza leuphotes*. Crested Cuckoo Falcon. A set of 2 of this rare species.
- **Ariceda jerdoni ceylonensis*. Ceylon Cuckoo Falcon. c/2. White, like the eggs of *Baza leuphotes*, but larger.
- **Falco severus indicus*. Central Indian Hobby. c/2.
- **Falco subbuteo jugurtha*. North African Hobby. c/2. Tunisia.
- Falco columbarius columbarius*. Pigeon Hawk. c/4. Ontario. The eggs of the North American forms of Merlin are all rare in collections.
- Falco peregrinus peregrinus*. Peregrine Falcon. One white egg, taken by Dunn in the Orkneys, in my series has passed through several collections as a Goshawk's egg, and gave colour to the story that the latter bred in the Orkneys. It shows some faint reddish specks and is evidently a Peregrine's egg.
- Falco peregrinus anatum*. American Peregrine Falcon. c/4. California. Scarce in collections.
- Falco peregrinus pealei*. Peale's Falcon. c/4. Forester's Island, Alaska. Extremely dark and handsome eggs.

- **Falco peregrinus brookei*. Lesser Peregrine Falcon. c/4. Morocco. Rare in collections.
- **Falco pelegrinoides pelegrinoides*. Barbary Falcon. c/4, c/2. Morocco. c/3. Algeria.
- **Falco biarmicus biarmicus*. South African Lanner. c/4. Vaal River, Potchefstroom, Transvaal, October 8th, 1906. I do not know of another set.
- Falco biarmicus erlangeri*. North African Lanner. I have also a set of 3 of these rare eggs from Algeria.
- Falco biarmicus feldeggii*. European Lanner. c/4. Turkey. These may or may not be correctly identified. Mr. Gordon does not give his locality, but it is certain that S. Russian eggs are always those of *F. cherrug cherrug*.
- Falco rusticolus islandus*. Iceland Falcon. 2/4, c/3. Iceland. The set of 3 are the largest and most beautifully marked eggs I have ever seen. One set of 4 is normal, but the other set are a second brood, and are very small dark eggs, not much larger than Peregrine Falcons'.
- Iëracidea berigora berigora*. Striped Brown Hawk. I think Mr. Gordon's eggs are more probably those of *I. b. orientalis*, from the locality, unless, indeed, they come from the interior.
- Pandion haliaëtus haliaëtus*. Common Osprey. My series of this is nearly as fine as that of the American form. I have two pairs and a single from Scotland, all old eggs and five sets from the Continent.

THE CRITERION FOR THE TRINOMIAL.

By E. C. STUART BAKER, F.Z.S., F.L.S.

Field naturalists and scientific egg-collectors now so universally accept the recognition of sub-species and the use of trinomialism, that I hope no apology is needed for the appearance of this article in a paper devoted primarily to egg-collecting pure and simple.

In "The Auk" for July, 1921, an excellent article appeared by Mr. J. Grinnell on this subject, in which he writes: "The criterion for the trinomial must *not* be closeness in general appearance, but it must be by *intergradation*, either by way of geographic blending or by way of individual variation, *determined strictly as such*."

This is practically the same as many naturalists in this country, including myself, have often stated, but my own definition has always been with the additional controlling factor that before any such variation is entitled to a trinomial it must either first prove to be constant within some given area, or the circumstantial evidence must suffice to form a *prima facie* reason for its probable distinctness from its nearest allies. Theoretically no bird should be given a trinomial until a series is available for examination but, practically, when a single specimen of a species is obtained at some very great distance from the type locality, showing very obvious variation, a name may, in rare instances, be given pending further investigation.

The question as to what degree of differentiation constitutes a species or sub-species is one impossible to determine, for variation which in one bird is specific may, in another, not even suffice to give it the status of a sub-species. Thus, difference in size may be a specific character in one bird, sub-specific in a second, and merely individual in a third. For instance, in the Crows, Cuckoos, Shrikes and many other birds, we have in India and Burma a general reduction in the size of the individuals of a species from North to South; but within this area we have smaller areas in which the size varies but slightly and we are thus able to lay down fairly definite lines of demarkation even when the diminution in measurements is not accompanied, as it often is, with other characters. On the other hand, we have birds such as *Garrulax pectoralis* and *Garrulax monileger* which differ principally merely in size, yet which inhabit practically the same range. Moreover, throughout their very wide habitat, both species form numerous geographical races which differ from the typical forms in much the same manner and to the same extent.

The great difficulty, according to some naturalists, in defining sub-species, lies in the differentiation of island forms, which they allege cannot be said to grade into one another. As a matter of fact, however, if series of a species are collected from the two or more islands which form its habitat, almost invariably certain individuals will be found in each series showing a tendency towards the difference in the size, colour or other variation which forms the feature distinguishing each from its nearest neighbour or neighbours. But the question of trinomialism at once opens up a vast number of other points and, above all others, that of the

manner in which sub-species are evolved. At present naturalists are, roughly, divided into two schools—the one claiming that all evolution is due to environment, the second that all specific change is due to mutation. Both are probably right, and the difference is one of words rather than of facts. To me it seems clear that environment is the cause of such evolution as is *necessary* to fit a bird to its surroundings. That is to say, it intensifies or reduces colour, increases or decreases length of limb, wing, bill, etc., and generally performs the work of elimination of all adverse characters, whilst it perpetuates and perfects all such as are beneficial. At the same time, for the initiation of *new* characters we have to look to mutation.

But even when differences are initiated by mutation, whether accidental or inherent, the question as to whether these shall persist or die out is settled by environment. There are, roughly speaking, three forms of mutation—beneficial, harmless and harmful. Now, if through mutation a bird is provided with a character which will be of assistance to it either in competing with other individuals of its own species or in rendering it more or less immune to some destructive influence, whether this be vermin, heat, cold, wet or any other factor, then the individuals which inherit this feature will persist in larger comparative numbers than those which do not have it. If, on the other hand, the mutational feature is harmful, we shall find it very speedily eliminated, for it will never be allowed to attain fixity, the individuals possessing it being destroyed at a greater rate than those without it.

This leaves only the third kind of mutation, *i.e.* the harmless. Many of these mutations are merely the abnormal expression of vigour and they persist because the more normal manifestations of vigour, such as increase in size, speed of wing, access of voice, etc., would be prejudicial to the continuation of the race; whereas other features, such as crests, breast plumes, brilliancy of colouring, etc., are not injurious in this particular instance.

Accidental variations which are not accompanied by unusual vigour are not likely ever to become permanent unless they come under the first class of mutation, the beneficial. On the other hand, when the new character is an expression of energy and vigour, the individual bird possessing it will have more chance of handing it on to his progeny, and will also probably have a more numerous progeny to hand it on to than will other birds possessing less vigour.

At this point we again reach a controversial question. Are accidental mutations hereditary and, if so, are not environmental changes also hereditary? To take the second question first. Many naturalists claim that variations caused by environment are not transmissible from parent to child and that whilst environment may affect the outer form or appearance of a bird, it in no way affects the protoplasm, and that neither spermatozoa nor ovaries are influenced thereby. But surely these naturalists are wrong. We have many cases amongst birds, as indeed amongst mammals, from man downwards, which have become permanently changed within historic times—such, for instance, as the Chaffinch of the Canary Islands, the Myna (*Acridotheres tristis*) of India and Tasmania, the House Sparrow of Europe and America. If the environmental variation had no effect on the protoplasm, each young bird born within its new habitat would be identical with that born in its original country and no change would be observable until environment had had time to act upon the individual concerned. But this is not the case. Each young bird is hatched and acquires first plumage which from the very beginning is different to that of its cousin at home. Environment stamps its mark on young and old alike, increasing with each generation until perfection of adaptation is reached and in time the effect on the outer bird is communicated to the protoplasm, which in turn determines the same effect on the young. The birds, in fact, breed true, so that if the adults are brought back to the country of their origin they will continue to breed true to the variation environmentally acquired in the land of their adoption until again affected, after a certain number of generations, by the environment of their original home.

Reverting to the first question, are accidental mutations hereditary? This can, of course, be at once answered in the affirmative by the rabbit-fancier, the poultry farmer, etc., who within the lifetime of one man produce more or less permanent varieties by breeding from carefully selected stock. But in the production of these varieties man usurps the place of environment in each generation by continually selecting the freaks or varieties which show the greatest advance towards the object he has in view. In this way we have produced the white albino rabbit, the long-tailed cocks of Japan, varieties of dogs and cats and all domestic animals. These races are all produced purely by selection, man

taking the place of environment and eliminating characters which are not desired and protecting those which are.

The procedure is simplicity itself when compared with Nature, for all man has to do is to continue selecting for breeding purposes those individuals which show to the greatest extent the freak characteristic he desires to make permanent.

In Nature there are a thousand-and-one influences, often conflicting, and the progress towards comparative permanency is naturally more slow. Parallel instances of man's and Nature's working are not hard to find. Take one of the simplest. Man has produced white rabbits, mice, etc.; so has Nature produced white animals, or animals which are white in winter. Man has produced his pink-eyed white rats by constant selection for breeding purposes of those rats which have possessed some constitutional character resulting in loss of pigment. Nature has gradually evolved, by the constant survival of the fittest, white animals which are protected in their winter habitat by their want of colour from their enemies of all kinds. In this category come such animals as foxes, the weasel tribe, certain Finches, etc.

What, then, is the difference between species and sub-species? To me the difference is this: Between species and species there is some definite point at which intergradation ceases, and the bridge is lacking which connects the one with the other; in sub-species there is a continued gradation which connects the two forms without a definite break. The exact extent of the break necessary to transform a sub-species into a species cannot be laid down, for it varies in degree in different birds; but if we add to our previous formulæ the rule that two sub-species cannot inhabit the same breeding area, we at once advance very considerably.

Take, for instance, *Phylloscopus borealis*. Here we have a Warbler which divides, broadly, into a western and eastern race differentiated by wing formulæ and to a less extent by size. In the winter both races may be shot off the same tree in certain countries, but their breeding areas are apart, and in the intermediate countries between their areas the wing formula is not fixed and the size is also intermediate. But if we turn to some of the *Acrocephali* we shall find that whilst a difference in wing formula appears to be merely of sub-specific value in some species, as in *agricola*, yet it is of specific value in others such as *scirpaceus* and *phragmitis*.

In island forms our breaks are naturally more and our connections less definite between various sub-species than they are in continental forms, but, as I have already said, in these we must look for individual variation to show us the connecting links.

With many naturalists "isolation" is insisted on as the dominant factor in the creation of species but, from this point of view, it is quite impossible to define isolation. It may be complete, semi-complete or very incomplete. The cause of isolation may be an actual gap, narrow or wide, in land boundaries as in islands and continents; it may be an almost equally isolating barrier such as a snow range, desert, etc., or it may be only a partial barrier, such as a big river or an area of country less suitable to the occupant than those on either side of it.

When a species becomes so dominant that it overcomes other destructive elements, it so increases in number that its tendency is to increase its area also. The consequences are three: first, the area invaded is so unsuitable that the species dies out at once; secondly, it is sufficiently suitable provided certain modifications are obtained; or, thirdly, the species carries on a precarious existence and in the struggle for existence continues its wanderings into more suitable countries. In these latter it once more increases and multiplies under conditions which perpetuate it, either in its original form or with some modifications which make it a new sub-species.

Often, however, it must happen that the birds which come under the third category eventually disappear entirely in the intermediate and less suitable countries, so that we then have a complete break in continuity of geographical range, the intermediate forms are wiped out of existence, and the sub-species, having lost all connecting links with its parent stock, becomes a full species.

Isolation and continuous in-breeding will not *create* new species or sub-species unless the environment evolves some new character or encourages some character accidentally commenced; on the other hand, continuous in-breeding may cause constitutional disturbances resulting in such freak characteristic as the dancing of the dancing mouse.

Even in cases similar to that of the dancing mouse or to the never-ending new forms produced among domestic animals, it must be remembered—a fact which seems to be constantly forgotten—that in these domestic animals environment never comes into play. Their surroundings are purely artificial, and the man who

selects the animals from which he breeds sees to it that no environmental condition disturbs his objective.

A very popular means of attempting to show how little environment has to do with the evolution of species and sub-species consists of the breeding of certain types of bird by the hybridization of species or the mating of sub-species. Thus, from two very different types of Pheasant may be produced a third type differing from either, and this third type may be perpetuated until it becomes more or less stable. If, however, such hybrids or intermediate forms were produced in Nature they would at once be stamped out if unsuitable in any way to their surroundings. By judicious blending one could in captivity undoubtedly form from the black Kalij (*Gennæus horsfieldi*) and the Chinese Silver Pheasant (*Gennæus nychemerus*) all the races of *Gennæus* now known and possibly many new forms hitherto unthought of. These may in time all breed true to their parents, but if released anywhere in the countries, to which their parents birds belonged, and freed from artificial protection of any kind, they would either *all* perish or those who escaped would gradually revert to the form dominant in the country on account of its protective coloration.

A STEEL EGG CABINET.

Those collectors who favour the use of the fairly large glass-topped boxes which house a series of the eggs of each species generally keep such boxes in wooden cabinets furnished with shelves, on which the boxes are arranged in tiers. We have lately installed in our office a Sankey-Sheldon steel cupboard, which would appear to be an ideal thing for the purpose. It is a standard production and can be added to as a collection grows, but there is no means of joining up one cupboard with another like a sectional bookcase. It is not so impermeable to air as an ordinary safe would be, but is well-nigh dust-proof.* It is finished externally like a safe and furnished with double doors locked by a Chubb lock.

The size best suited to the Oologist is No. 628, which is 72 inches high, 28 inches wide and 18 inches deep. This size has three adjustable shelves, and many more shelves can be added at 7s. 6d. each. The price is £8 17s. 6d., which is practically as cheap as wood. The cupboards are sold by Messrs. Harris and Sheldon, of 46, Cannon Street, London, E.C. 4.

NOTES ON EGGS FROM WESTERN SPAIN.

By THE EDITOR.

A very interesting little consignment of eggs has reached us from the western part of the province of Estremadura, in Spain—a district that has, we think, been very little worked over by English Oologists. Our correspondent was not quite early enough in the field, but this is a thing that will, we hope, be remedied another year.

The district in question is not very mountainous, and the rarer Accipitres would appear to be lacking, although expeditions can be made to greater distances another year. One very interesting little Falcon seems to thrive in the populated areas, for our correspondent has sent two very pretty sets of *Cerchneis cenchris*, the Lesser Kestrel, found beneath the tiles of a house! Sets of Common Buzzard and Kite do not present any unusual features, but there is a set of two of a species of Eagle which we have not yet identified.

The Woodchat Shrike, of which a large series has come to hand, carries there the Portuguese name of Picanso. Some of the sets are very handsome and with more distinct markings than those from further north. A set of nine eggs of the Hoopoe was found, very advanced as to incubation, as early as May 13th, but fresh eggs of the Raven were found later. The common form of Tree Warbler there is the Melodious, *Hypolais polyglotta*, of which some pretty sets have come through. A fine set of four Orphean Warblers has a Cuckoo's egg with it of a type very closely approximating that of the foster-parents. Of course, the Orphean Warbler is known to be a frequent victim of the Cuckoo in Spain.

There are several sets of the Spanish Sparrow, Gorrion Molinero of the natives, including one in which each egg is heavily capped. One of several sets of Corn Bunting is a type rather out of the ordinary; it could be best described as a very large edition of the eggs of the Ortolan Bunting, with the size of the spots, as well as that of the eggs, very much larger. There is one set of the Rock Thrush, one set of Crested Lark, one of Short-toed Lark, two sets of Nightingale, one set of Russet Wheatear, one set of Serin worthy of note as being almost the minimum size for this species on record, and a set of four Common Swift. We still hope to receive some Bustards, and, in time, to get to know quite a lot about the breeding species of the district. Having spent a long time acquiring a

working knowledge of Spanish, we shall hope to ascertain the possibilities of other parts of Spain that have been neglected in the past. We regret to say, however, that "mañana" in Spain seldom comes, and that many correspondents have taken up the matter of Cology in Spain very eagerly, but that results have been negligible in other cases.

BREVITIES.

The Hon. C. F. Belcher has been home from Nyasaland and paid the Editor a very welcome visit, during which African *Fringilidae* were passed under review and notes compared. Mr. Belcher presented us with some very fine sets of his own taking in Nyasaland, especially a fine c/3 of *Emberiza major*, which reposes next to a very strongly contrasting c/2 from Mr. Carlisle in Rhodesia.

Talking over the progress of "The Oologists' Record," Mr. Belcher expressed the opinion that we had now enlisted the support of the Empire's principal working Oologists. We do indeed wish this were the case! The difficulty is to get into touch with the others. There must be innumerable men working out their Oological records all to themselves who would be glad, one would think, to join up with us could we but get into touch.

Mr. Houwing, writing from Java, says that his district is very rich in bird-life. He finds a great need for an up-to-date and helpful work on the birds of the Dutch Indies.

Mr. Swann's article in the current issue sums up the extent of our knowledge of the eggs of that most interesting family, the Accipitres. Doubtless, however, there are collectors who have eggs of species not included in either the Swann or the Gordon collections. We should like to know of them and to describe them in our pages.

We should like to be able to publish in forthcoming issues descriptions of some of the little-known species found in some of our readers' collections. Most of the great natural geographical areas have been worked over to such an extent that the very rare

species are "ticked off" and set apart as unattainable by many collectors. But there are just a few big collections that contain such eggs, and it would be good to have them described and placed on record.

Colonel R. N. Stewart left England last month on his way to the Montanas region of the Upper Amazon. He is making rather a long journey to get there, and will cross Canada and proceed down the West Coast, crossing Peru to get to his destination. We look for some interesting results from his projected stay in a region that is very rich in bird-life.

A cock Wood Warbler has taken up several positions this year quite near our house, but never, so far as we have been able to ascertain, has he been joined by a female. He would appear to be doomed to bachelor existence!

Some years ago we reported a case in which a box was hardly vacated by a brood of Great Tits before it was again tenanted. The same thing has again happened in our garden this year and in the same box. Unfortunately, I did not note the dates, but *I know* the first brood vacated on Sunday, May 27th, and it was on the following Thursday or Friday that I peeped in and saw three fresh eggs in a new lining, my attention being drawn to the fact by the bird flying out.

The Redstart will sit, it appears, as "tightly" as a Robin. We passed one quite closely almost every morning, eye to eye, and it never flew out, but, just before the young were fledged, we spent a large part of a Sunday afternoon trying to get a snapshot of anxious parents at the nest-box, all to no purpose. Unfortunately we had no "property cow" or bush in which to hide.

Dr. Glover Allen, in response to an enquiry made by us, says that Sable Island is much more inaccessible than appears on the map. About the only way of going there is from Halifax, through the kind offices of the Canadian Lighthouse Service. A friend of his made the trip, but for botanical purposes. Dr. Allen was kind enough to add a few words of appreciation and encouragement apropos the "Record."

Mr. Leon Dawson's son had a rough time in Ecuador. His father writes: "It took exactly two months to connect up with "funds cabled him early in November—official blundering and "stupidity, while the boy nearly starved. However, his letter "says he is shipping the little Galapagos stuff. . . . You can "bet we will prize it, since it is the sole outcome of a year's effort. "Only think: all he got is a small series of each of two species "of *Geospiza*, and one egg of the Galapagos Heron!" His next field is to be the highlands of Northern Ecuador, where it is to be hoped he will meet with more success.

Mr. Eric Lewis sent us some very interesting photos of Natal nests which we wish we were able to reproduce. He reports having seen that most elusive bird, the Oxpecker, of which there seem to be hardly any authentic eggs in existence.

Both Mr. Austin Roberts, of the Transvaal Museum, and Dr. van Someren, in East Africa, report that Rendall's Seed Eater is a parasite in its nesting habits; nevertheless Mr. Carlisle feels sure of the identity of the eggs he secured. As he says, it may be that the bird is not *always* parasitic. Anyway, further light on this matter will be awaited with interest.

Would it not be possible for the publishers to reprint the very scarce Volume I of Stark and Sclater's "Fauna of South Africa"? If all our readers who desire to obtain a copy will send in their names, we will make representations in the right quarter. It would help, of course, if some would take two copies.

Mr. Paget-Wilkes has joined the staff of St. Andrew's College at Grahamstown, Cape Colony. He sent for a supply of our research forms and is busy getting to know the birds of that district.

Africa bulks rather largely in our pages, but every mail brings us evidence of the keen interest taken in Oology by our correspondents in the Dark Continent.

We make no apology for publishing Mr. Stuart Baker's article on "Trinomials." To say that we are proud to present our readers

with this masterly summing-up of the case is to say too little. The matter of the status of sub-species is, too, as important to the Oologist as to the Ornithologist, and it is a fact that has often been asserted that the study of a series of eggs from certain districts often shows that the eggs will at least help to guide in the determination of sub-specific rank.

Mr. Geo. Scholey, an old and valued correspondent, has been "broadcasting" the results of his latest investigations into the habits of the Cuckoo.

We would be interested to learn what experiences other observers have had in the case of the deposition of the eggs of the Reed Bunting, as two cases have come under our notice in which there has been an interval of more than a day between the laying of the eggs. Is this usual?

As a new-comer into the ranks of Ornithological journalism, it ill becomes us, perhaps, to comment on the merit of our contemporaries. We were asked, however, to name those other papers which interested us most. Unhesitatingly we replied, "The Wilson Bulletin" and "El Hornero." We greatly envy the fortunate position of those responsible for the latter. Not only do ample funds appear to be available for producing a very fine record of South American Ornithology and Oology, but the members of the society of which it is the official journal appear to be more than ordinarily enthusiastic. Funds alone would not suffice to produce the result. The feature of "The Wilson Bulletin" we like so much is the intimate record of the doings of its subscribers, who appear to keep so closely in touch with their deservedly popular Editor, Dr. Lynds Jones.

The United States is, happily, large enough, and its Oological workers sufficiently spread, that there is not the need for withholding the results of localized research that exists in England, where few districts, however remote, are a day's journey from anyone interested. Not only so, but in the States the law permits the taking of eggs for scientific purposes in most of the States of the Union. In some States it is difficult to secure a permit and almost impossible to get permission to send specimens away, but

such States are the exception. In a country so vast, with its bird-life not yet by any means thoroughly ascertained, it is not surprising that the Federal Government maintains a most competent staff of biological workers, whose aim is not only to explore its bird-life to the uttermost, but to ascertain its bearing upon the agricultural and other resources of the country. Mr. E. W. Nelson, the head of the section dealing with bird-life, issues each year a most valuable and interesting report on his work. Many individual States have their own staffs working on similar lines, and a most interesting survey was recently received in regard to the bird- and animal-life of Louisiana. It must have been compiled and published at a cost which would make our Parliamentary economists turn grey.

The London "Daily Chronicle" reports under date June 8th, 1923, that :

"In a Falcon's nest on one of the lower ledges of rock beneath the lighthouse on Great Ormes Head, Llandudno, over 1000 Pigeons' feet have been discovered, most of them bearing a numbered ring.

"This explains a mystery which has puzzled for some time the owners of homing Pigeons in the industrial centres in the northern counties—the non-arrival of many birds after being liberated at various places in France and the South of England.

"A local boatman, who saw a Falcon attack a 'homer' and carry it away to the rocks, found his way to the nest of the bird of prey, and the wholesale slaughter was revealed.

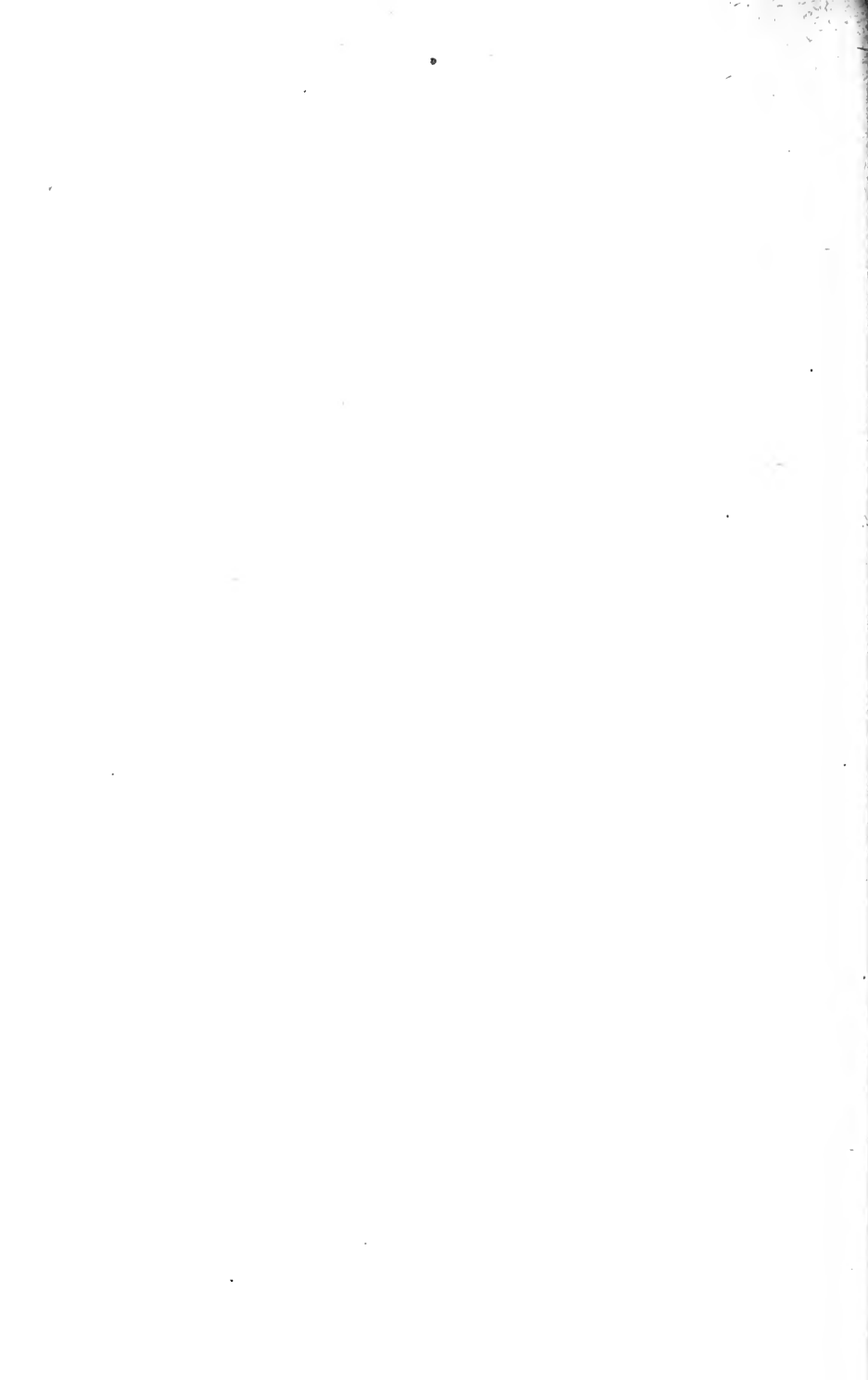
"All the remains of the Pigeons were collected, and the numbers on the rings will be communicated through the 'Homing World.'"

Rather striking evidence this of the havoc that a pair of Peregrines are capable of.

Mr. C. L. D. Bickerton wrote us recently that he had been transferred to Kinkiang, at the extreme south of Anhwei Province and just on the borders of Kiangsi Province. He says the country there is wonderfully rich in bird-life, and only the presence of an innumerable number of snakes retards his Oological investigations. Although he thinks that 90 per cent. of the snakes are quite harmless he has some respect for the remaining 10 per cent. ! He finds his motor-boat useless for much of the time, and has to make use of a

native junk and do the land work in "chairs." Mr. Bickerton hopes really to make some use of the little leisure that he gets during the present season, and we shall hope to be able later to put on record some of his discoveries.

The nesting season in England for most of the commoner species of birds seems to be more prolonged than usual and more new nests have come under our notice in mid-June than is usually the case. We should like to hear from subscribers what their experiences have been, and it would be interesting to trace a connection between this and the extraordinary weather conditions of the present year. Of course it has been a most prolific season for blight and other insect pests, though we have not, in Surrey, seen the oaks so subjected to caterpillar depredations as usual. There must be an abundance of food for all the Warblers and Tits and other insect-loving birds.



THE OOLOGISTS' RECORD.

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NOTES OF THE EGGS OF PALÆARCTIC ACCIPITRES.

By the REV. F. C. R. JOURDAIN, M.A., M.B.O.U., H.F.A.O.U.

After reading the interesting accounts recently published by Messrs. J. G. Gordon and H. K. Swann of their collections of eggs of Accipitres, the surprising fact becomes apparent that if these collections represent the sum of our knowledge of the eggs of this family, considerably less than half of the eggs of the Accipitres are known to science, and less than a quarter of the known races are represented in the specialized collections of these two collectors.

The total number of forms represented in Messrs. Gordon's and Swann's collections amounts to about 170. In the Palæarctic region alone some 130 races are recorded, and in my own collection, which consists mainly of Palæarctic eggs, about 82 of these forms are illustrated, in nearly every case by clutches, and in the great majority of instances by series of varying length. But the importance of the collection lies in the fact that the eggs of over 40 per cent. of these species have been actually taken by myself. In the case of a specialized collection of the Accipitres of the world it is obviously impossible for the collector to have worked seriously at this group in all the great zoographical regions, but within the more restricted limits of one region this ceases to be an impossibility. Of course in the case of such species as the Iceland Falcon or Merlin this adds nothing to the scientific value of the eggs as material, although it does add very much to their interest. No one could mistake the eggs of either of these species for those of any other falcon which breeds in Iceland, so no possible doubt can exist as to their authenticity if the source of origin be correctly given. When, on the other hand, we come to the study of Mediterranean races of the Peregrine Falcon, or to discriminate between the eggs of the Lanner and Saker, we enter upon a different field altogether. The majority

of such eggs which come into the market are accompanied by the barest and scantiest data. No indication is given as to whether supposed nests of Lanner were taken from cliff sites or trees; clutches of Falcons' eggs, inscribed "*Falco barbarus*," are sent from Marocco, which may be any of three different forms, *F. peregrinus brookei* from the Tangier district, *F. p. pelegrinoides* from the Atlas, or even *F. biarmicus erlangeri*, of which the eggs are not always distinguishable. It is customary for the opponents of egg collecting to speak of the vast stores of accumulated material in our great collections as sufficient for all purposes of study. To show the fallacy of this let us glance at the *Cat. Eggs Brit. Mus.*, II, p. 299. Here under the head of *Falco feldeggii*, Schl. (= *F. biarmicus*) are catalogued no fewer than 25 eggs. Two eggs without data from "Europe" may be discarded at once. The next seven eggs from South Russia are wrongly ascribed to this species and should be catalogued under *F. cherrug*. There remain only 4 eggs for Palestine (probably *F. biarmicus tanypterus*), 10 eggs from Egypt, which are probably correctly assigned to this species, but may possibly be *F. peregrinus pelegrinoides* and two eggs from Tangier (= *F. biarmicus erlangeri*)—*F. biarmicus feldeggii* is not represented at all: *F. b. erlangeri* by two eggs only, and *F. b. tanypterus* by one clutch of 4, and 10 somewhat dubious eggs, in several cases undated and not including a single clutch!

The fact is that for scientific study on modern lines much of the material with which our museums are cumbered is absolutely worthless. At present the only way in which reliable data can be accumulated is by the laborious process of visiting and studying all public and private collections, and gradually accumulating, by a process of elimination of all dubious material, really reliable figures and data. I venture to think that the eggs of the Accipitres as at present known can only be studied not only by the examination of the world collections of the British Museum and Tring, or the specialized collections of Messrs. Gordon and Swann, but also by placing under contribution the great regional collections such as Mr. E. C. S. Baker's Indian collection and my own Palearctic series as well as the principal local collections in all countries.

In the following notes, for the sake of uniformity of treatment, I have followed the order and nomenclature of Mr. H. K. Swann's list. Those species marked with an asterisk are not included in either Mr. Gordon's or Mr. Swann's paper.

Ægyptius monachus. Black Vulture. My series includes 14/1 from Roumania, varying from pure white to heavily marked types, and 2/1 from Cyprus. Mr. Swann remarks that the series in the Tring Museum is the finest in existence. This seems to be rather a rash statement in view of the fact that magnificent series exist in continental collections, and one private collection in England contains no fewer than 30 picked eggs, which have never been seen by him.

[**Pseudogyps africanus africanus* is apparently absent from both Messrs. Gordon's and Swann's collections. It is not a Palearctic species but I possess one egg, well sprinkled with brown markings, 91×63.5 mm. (Somaliland).]

Harriers (*Circus*). The eggs of this genus are practically worthless unless taken by capable observers or from districts where only one species nests. The eggs from South Russia are merely identified on grounds of probability by their size. During the present year I took two clutches of *C. æruginosus æruginosus* and flushed the hen within a few yards in each case, of which the eggs varied in size from 47×35 in one nest to 54.4×42.5 in the other. The smaller set might have passed for large eggs of *C. cyaneus*. This was in a locality where only *C. æ. æruginosus* breeds. The overlapping in size of the eggs of *C. cyaneus*, *C. macrourus* and *C. pygargus* is well known, but really reliable data with regard to the second species are hard to get. Only one set of *C. æ. harterti* is catalogued by Messrs. Gordon and Swann, but the eggs are common enough and I have taken many sets in Spain as well as one from the type locality in Algeria, from whence eggs are almost unknown.

**Circus melanoleucus*. Pied Harrier. A c/5 from the Amur district shows faint brown markings. Size, $44.2 - 45 \times 34.5 - 35.9$ mm.

Astur gentilis. Goshawk. My series includes eggs from Lapland, Germany, Roumania, Spain and Morocco, and the extraordinary variation in size from north to south gives a very definite forecast of the subdivision of this species into geographical races which is now beginning to be recognized as inevitable. The Moroccan eggs are much the smallest, while the South Spanish ones come next in size. There is no doubt that when skins are available a new form will be described from Morocco.

A. g. schwedowi. If the race recently described by Mr. Swann from Japan is generally accepted all the eggs in Messrs. Gordon's and my own collection must be transferred to it.

* *A. brevipes*. Levantine Shikra. These eggs are scarce in collections and I only possess a clutch of 2 from Greece (Krüper). Average size about 40×31.7 mm.

* *Accipiter nisus wolterstorffi*. Sardinian Sparrow Hawk. I only know of 5 eggs of this well-marked race ; one egg in the Tring Museum, and a c/4 taken by myself, all from Corsica.

* *A. nisus punicus*. Algerian Sparrow Hawk. These eggs are also scarce in collections and I have only 3 from Tunisia, where the bird appears to be not uncommon locally.

Buteo hemilasius is represented by 2/4 and *B. japonicus* also by 1/4.

Buteo buteo buteo. Common Buzzard. My series of British eggs includes 1/5 (taken by Mr. J. F. Peters), 1/4, etc. Also a series from South Spain. I know of one other British set of 5, the authenticity of which is beyond dispute and have seen one very fine c/5 from Switzerland.

B. vulpinus is recognized as a separate species by Swann. Personally I am inclined to doubt its validity, though there is a remarkable difference in the size of the eggs. *B. v. intermedius* is represented by 2/2 taken by myself in Roumania.

B. ferox cirtensis. Algerian Buzzard. This bird nests both on rocks and in trees, and I have clutches taken by myself from both types of site.

Triorchis l. lagopus. Rough-legged Buzzard. The clutch ranges up to 6 : 2/6, 2/5, etc., in my collection.

T. l. pallidus. Siberian Rough-legged Buzzard. 1/4, 1/3.

Gypaetus b. grandis. Bearded Vulture. c/2, c/1, Spain ; c/2, Tian Shan ; c/2, India.

Aquila heliaca (Imperial Eagle and *A. adalberti* (White-shouldered Eagle). I have been fortunate in taking sets of 3 of both forms. It is scarcely characteristic of the eggs of the White-shouldered Eagle that they are much more heavily marked than those of the Imperial. Many eggs are quite white, without any traces of marking whatever. One remarkable fact is that clutches of four undoubtedly occur occasionally in the White-shouldered form.

* *A. rapax belisarius*. Algerian Tawny Eagle. One clutch of 3 eggs from N. Tunisia.

A. clanga. Great Spotted Eagle. These eggs are commonly sent from S. Russia and Turkestan, but can only be accepted with

reservation, as *A. nepalensis orientalis* also breeds in the same district and the birds are by no means easy to distinguish.

Hieraëtus f. fasciatus. Bonelli's Eagle. Besides eggs from Spain and Cyprus I have also 4 eggs from the R. Tigris, Iraq, and c/2 from India.

H. pennatus. Booted Eagle. Two clutches from a series of six taken in Spain are quite well spotted with brown.

Circaëtus gallicus. Short-toed Eagle. Mr. Swann says that the nests "are generally in cork oaks" (in Spain). I have seen nests in cork oaks, but I notice that all the four eggs in my collection, taken by myself in Spain, were found in pine trees.

Haliaëtus a. albicilla. White-tailed Eagle. My series includes c/2 (Scotland), c/2 (Baltic), and 3/2 (Mesopotamia).

Milvus m. milvus (Red Kite) and *M. migrans migrans* (Black Kite). I find no certain test by which the eggs of these two species can be separated in all cases, after comparison of a fine series of both collected in Spain, including 5/3 of Red Kite and 7/3 Black Kite. One clutch of Red Kite is decidedly smaller than the average set of Black Kite.

M. migrans aegyptius. Egyptian Kite. Like Mr. Gordon, I have c/4 from Damietta but attach little value to it, as it was taken by a dealer-collector and the experience of all recent observers tends to show that the clutch ranges from 2 to 3.

M. m. govinda. Pariah Kite. Probably Mr. Gordon's suggestion is correct as the largest supposed eggs of *M. m. govinda* come from localities where *M. lineatus* also breeds. I possess one c/4, small eggs devoid of markings.

* *Pernis orientalis*. Siberian Honey Buzzard. c/2 from Tian Shan.

Falco eleonora. Eleonoran Falcon. 1/4, 3/3. This is the only set of 4 I have seen.

F. peregrinus calidus. Siberian Peregrine. c/4.

F. p. brookei. Mediterranean Peregrine. c/4, Corsica; c/4, Cyprus; c/3, South Spain.

* *F. biarmicus tanypterus*. Egyptian Lanner. c/4, Egypt, and c/4 Palestine.

F. cherrug cherrug. Saker. A very fine series taken by myself in Roumania and including 2/5, 5/4.

F. rusticolus rusticolus. Gyr falcon. 3/4.

F. r. islandus. Iceland Falcon. c/5, 3/4. For "second brood" should be read "second laying" (*antea*, p. 30).

F. r. candicans. Greenland Falcon. c/4, c/3.

Cerchneis tinnunculus tinnunculus. Kestrel. One set of 7 (England) is included in this series, which also contains c/4 pure white eggs taken in 1923 by myself.

C. t. rupicolæformis. Egyptian Kestrel. c/5, 2/4 (Lower Egypt).

C. t. canariensis. Canarian Kestrel. c/5.

* *C. t. dacotiæ*. Fuerteventura Kestrel. The only clutch at present known to me. Handsomely marked egg averaging 37.6×30.5 .

* *C. t. interstinctus*. Himalayan Kestrel. c/5, c/4, c/3.

While writing on the subject of the Accipitres I may be allowed to refer to the breeding of Bonelli's Eagle in trees (see *Ool. Record* I, p. 52). In 1921 Messrs. H. Kirke Swann and J. H. McNeile found a Bonelli's Eagle breeding in a big pine in the Cotos, S.W. of Coria, and Mr. Swann seems to be under the impression that such a case was previously unknown. Saccone told me as far back as 1907 that his men first found this species breeding in a pine tree in this Coto in 1906. The eggs were taken and sent to a well known collector in England, but arrived in fragments. From that time onward this Eagle has nested annually in the district, generally in the same tree, so that for eighteen years at any rate, the breeding in trees in S. Spain has been known. I have been on several occasions close to the nesting place but always too late in the year for eggs. Another nest of the same species which I saw in the Sierra Retin was built in the upper boughs of a small tree growing out of the face of a wooded cliff, but this might with some reason be classed as a cliff-breeding bird. However, there is another case on record from Eastern Europe as in 1886 von Kadich obtained a clutch of 2 eggs and shot the female from a nest in a tall oak tree in Herzegovina. (*Im Zeichen der Schwalbe*, p. 102-105.)

In a footnote (*O. Rec.* I, p. 53) the Editor quotes Arevalo's account of the Eleonoran Falcon in Spain, calling attention to the statement that "some English authors" have recorded its breeding "for about a century on the rocks of Peñon at Gibraltar." "Some English authors" is a loose and inaccurate reference to the statement by the Rev. John White (brother of our own better known Gilbert White) that "the Hobby" nested at the "back of the Rock" about 1776. Irby pointed out that the Eleonoran Falcon was the

only "Hobby" that could possibly have bred there. (El Peñon is, of course, the ordinary Spanish name for the Rock.) I think Arevalo's statement should read that *about a century ago* (not for about a century) some species of Falcon bred on the rock, but it must be remembered that the Mediterranean Peregrine still breeds there, so that the evidence of the breeding and even of the occurrence of this species on the Spanish mainland does not rest on a very secure foundation.

NOTES ON EGGS OF RAPTORES.

Colonel R. Sparrow has kindly sent us for publication the following notes on some rare eggs of the raptores in his collection. Six of the species will be seen to be new to the lists of the collections of Messrs. Gordon and Swann.

Torgos t. tracheliotus. Black Vulture. c/1, c/1

1st laying, large white oval egg, unspotted, 17th July. 2nd laying, smaller white oval egg with a few dark red spots at the larger end, taken from same nest on August 18th, at Potchefstroom, Transvaal.

Accipiter rufiventris. African Sparrow-hawk.

c/4 from the Mooi River, Natal, 11th October, 1906. Very similar to those of the European species (*Accipiter n. nisus*), but smaller.

Hieraëtus fasciatus spilogaster.

One single egg taken by Mr. Carlisle on the Strathmore Ranch, near Buluwayo. It resembles a large egg of the European Kite. This egg belongs at present to Mr. Carlisle.

Spizaëtus bellicosus. Warlike Crested-Eagle.

c/1 taken by Mr. Austin Roberts near Potchefstroom in the Transvaal on 19th July, 1903. It is a large creamy white egg covered all over with blotches and spots of pale brown.

Circaëtus pectoralis. Black-breasted Snake-Eagle.

c/1 taken in British East Africa on 19th July, 1909. A large white oval egg believed to be of this species but the identification is not certain as the parent bird was not seen by owner. It measures 75 mm. \times 57.6 mm.

Haliaëtus vocifer. Vociferous Sea-Eagle.

c/1, c/1. Taken on 14th June, 1902, and 19th August, 1909, both from the Bluff at Durban, Natal. Pure white, unspotted.

Terathopius ecaudatus. Bateleur Eagle.

c/2 from the Olifants River, Portuguese East Africa, 19th June, 1904. Fresh. They measure 65.4×52.4 and 65.1×53.1 mm. The larger egg is profusely covered with pale lilac and pale brown blotches and spots and the smaller egg is a dirty white with indications of spots and blotches embedded in the shell. Nest was high up in a tall thorn growing at the foot of a stony ridge. The natives said this species often laid three eggs.

Falco b. biarmicus. South African Lanner.

c/4 and c/2 from Potchefstroom, Transvaal.

Falco biarmicus erlangeri. N. African Lanner.

c/4 from the 2nd Pyramid of Gizeh taken 18th March, 1894. One egg is quite different to the other three, being marked with purple instead of red.

Falco p. pelegrinoides. Barbary Falcon.

c/3 from the Dahsur Pyramid in Egypt. Taken 28th March, 1909. These eggs resemble large eggs of the Hobby.

WILD BIRDS PROTECTION BILL, 1923.

To the Editor, THE OOLOGISTS' RECORD.

SIR,—As one who from boyhood has taken an interest in birds, their nests and eggs, may I be allowed to write a few lines upon some aspects of the Wild Birds Protection Bill, the second reading of which passed the House of Lords on Tuesday, 10th July, and the third reading on Monday, 30th July. The Bill, however good its object, is so full of absurd restrictions that it is doubtful, unless drastically amended, if it will successfully accomplish that which its authors desire, or indeed what the title of the Bill implies.

May I, in the first place, express the opinion that more carefully considered Acts of Parliament would be passed if only the public generally could have an opportunity of purchasing and studying the respective Bills say for a month before the second reading took place. It would at least enable the interested portion of the public to fully understand what was proposed and also give them sufficient time to convey their views to members of the particular House of Parliament before such second reading, and in consequence the views of members might be given with fuller knowledge of the facts, both local and general, and with more force and understanding

at the time of discussion. It is moreover clear that eventually better Bills would be introduced, and not so much time wasted in Committee, in trying to amend obvious errors, and to rectify omissions.

This conclusion is forced upon those who have read the debate in the Lords on this particular Bill.

There is little doubt that the drafting of the Bill might be improved, and in writing this I am not doing so as an opponent, but as a friend of the Bill.

The wording of Category III. alone would probably give a headache to a lawyer.

In his remarks Lord Grey mentioned that the categories of protected birds had been made as short as possible. I venture to think that not only are they too short, but they should be made clearer and more explicit.

It does not help to elucidate matters to specify "Hawk (all species except Kestrel and Sparrow Hawk)." What would a bench of Magistrates decide if a townsman pleaded that a Peregrine was a Falcon and that he was not aware that it was a Hawk? Many who are interested are not impressed by the attempts to make the Bill and Schedules as short as possible. The curse of present day legislation is that it clips too much, with the result that more coaches and fours can be driven through modern Acts of Parliament than in former days, when the Acts were generally well expressed, and people whose business it was to study them could understand what they meant, at any rate more so than is the case to-day. In this particular instance it should not be forgotten that comparatively few people know the difference between one bird and another. How many educated people can tell the Swift from the Swallow, the House Martin or the Sand Martin, or *vice versa*.

The wisdom of deliberately omitting from Category I. certain birds which visit our country during the autumn and winter is very questionable and I deeply regret that many of these birds have been in effect left out of the Bill. There is not the slightest doubt that if the Bill goes through in its present form, these birds will be slaughtered in greater quantities than they are to-day, for the simple reason that people will know that there is no penalty attached to the killing of such a bird, and will think that the powers that be are not sufficiently interested in preserving that particular

species. Moreover, the taxidermist and his allies will naturally set themselves out to seek for more specimens of certain of these species, particularly if debarred from dealing with the birds placed in Category I.

As for the Categories, space does not allow one to go fully into details, but I am surprised to see it was not deemed worthy to place the Ruff and Reeve in Category I. I should also have thought that the Cirl Bunting and Woodlark might also be placed there.

Why not place the Blue-headed Wagtail, Nightjar and Wryneck in Category II?

It is presumed that Snipe means Common Snipe, but the Bill does not say so. This definition would appear to be necessary because many Jack Snipe are here until after the close season commences.

These are only a few examples, but they might be multiplied.

The Bill has been amended during its progress through the Lords by the end of the close season for birds in Category II being put back from August the 31st to July the 31st.

Desirable as it was for Category II in the original Bill to be divided into classes, there would now seem to be even greater reasons for so doing. In order to continue the legitimate shooting in August of Wild Duck and other birds ordinarily used for food, it does not seem fair to allow a Kingfisher to be shot during that month, and therefore a division of the birds in Category II. might take place on the following lines :—

Class A.—To include such birds as Wild Duck, Common Snipe, etc.

Class B.—To include such birds as the Goldfinch, Kingfisher, etc.

This brings me to the point at which it would be necessary to show that July 31st is an unfair date to fix as the end of the close season for those birds which would be placed in Class B. Surely September the 30th would be a much safer date. What is the object of protecting a scarce bird like the Dotterel on the 31st of July and allowing it to be shot on the 1st August? Many species of birds, especially the late broods, are still about in August and September, and the extension of the close period by two months would enable them to get away. If July 31st is to be the date why not add to the list of birds in Category I.

Could not the Crossbill be included in Category I., or at all events allowed the same chance as the Woodcock, and given a special close time, say from the 1st of January?

I freely confess to the possession of a collection of eggs, but have always abstained from taking the egg of any bird which I considered to be rare, nor have I purchased any such egg from dealers.

The Bill appears to have been drafted from an extreme point of view. Lord Grey's speech was very severe. I do not think there are many egg collectors whose ideal would be to find a bird that had never bred in this country before, and was for the first time nesting, then secure the eggs and hope that such a bird would never breed in this country again. There may be a few of these individuals, but, whoever they are, they are not regarded with favour by the ordinary collector. Most people will agree that the authors of the Bill are quite at liberty to insert a clause which would deal most drastically with such a person.

Surely it is not the opinion of the authors of the Bill that all egg collectors are such unreasonable creatures. Have they (the authors) never taken an egg? How many of our experts (past and present) have commenced when boys by taking the egg of a Hedge Sparrow? How many of them would have followed this up if they had had the opportunity of adding thereto?

Did the authors of our beautiful works on birds and birds' eggs such as the Rev. F. O. Morris, H. L. Meyer, H. E. Dresser, and many others, never take an egg?

Is it not a fact that many of the best collections eventually find their way to the museums? There is no object in placing every collector on a black list simply because a few may have abused their position.

There would appear to be several serious omissions in the Bill, which does not take cognizance of, or define, a blown egg or an addled egg. Is it seriously suggested that a person should be fined £5 for taking an addled egg? The idea is absurd.

Take another point:—My only clutch of landrails is one which was taken when the bird was killed by a mowing machine. Is a person to be prosecuted and run the risk of being involved in a possible penalty of £45 because he preserved such a clutch instead of leaving the eggs to rot in the nest, or be sucked by the first Magpie or Weasel discovering them?

There is no definition of the word "plumage." Supposing a person is found in possession of the feather of a Red-backed Shrike, has he to run the risk of an inquisition, because he picked it up?

The Bill does not define the word "Nest." Space does not permit me to deal fully with this point, which is not so simple as the Bill would imply.

A very grave omission in the Bill is the want of definition of the word "disturb." Now what does this word mean? Does it mean that it will not be prudent for a person to go birds nesting, find and examine with care, the nest of a bird placed in Categories I. and II., even although he may not take an egg? Does it mean that if a certain bird flew off its nest when looked at, that it would be a punishable offence? Does it mean that people who go in for bird and nest photography would no longer dare to do so in safety? This may not be an unmixed blessing as there is no doubt that frequent visits to the nest have caused many a rare bird to forsake. May a person take an egg out of a nest, look at it and place it back again? If this is not so, future generations will be quite unable to distinguish one species of birds' eggs from another.

I think it is probable that the police courts will have many more cases to settle and in addition the courts of appeal be kept fairly busy.

The Bill would appear to render a farmer and his workmen liable to be prosecuted for disturbing the nest of a landrail, even if they do not know exactly where the nest is situated, and this notwithstanding the necessity of cutting a field of grass.

As for the owners or occupiers of land adjoining a road, they, and the County Councils, will have to consider the advisability of continuing, or otherwise, the practice of trimming the fences and ditches on the road sides, and they will be faced with the alternative of a summons for allowing the same to become a nuisance or cutting the fences and herbage and then being summoned for disturbing the nest of a particular species.

Do the authors of the Bill quite realize what they are attempting to carry out, or what will be the effect of the Bill, if left as it is?

The suggested bonds and penalties, as pointed out in the debate in the Lords, appear to be unnecessarily heavy.

Fond as we may be of country life and grateful as we may be to Lord Grey and those associated with him for taking up this subject, let us have reason in all things, but above all do not let

us have a Bill which swings from the sublime to the ridiculous, or which places a Ruff or a Reeve on the same level as a Partridge, and allows a person to shoot the former on the 1st of September notwithstanding the fact that he may be fined £20 a few weeks previously for having taken the eggs of the self-same bird.

Your obedient servant,

G. N. CARTER.

8, Wolseley Place,
Withington,
Manchester.
11th August, 1923.

A PLEA FOR THE PROTECTION OF BIRDS.

By LEWIS R. W. LOYD.

Such a heading as the above may seem, to some, curiously out of place in a journal devoted exclusively to matters oological. But is it? I think not. The egg-collector is not nearly so black as many people would like to paint him, and is just as open to reason as any other ornithologist—perhaps more so for, as a rule, he is more intimately acquainted with the bird's home life. The R.S.P.B. have lately been shouting very loudly about what they are pleased to term the "filching of eggs by the clutch" (32nd Annual Report, p. 7) and quote the *Dundee Advertiser* (presumably a newspaper) which with studied civility refers to collectors of clutches as the "most baneful of this baneful breed." With the probable exception of the White-tailed and Golden Eagles every British breeding bird will lay again if its first clutch is destroyed—whether by human or other agency: the vast majority will lay a third time; many a fourth or more. If the whole clutch is "filched," therefore, no harm is done for I can hardly believe that the most grasping collector would knowingly rob a bird of its second clutch—certainly not of its third. If only a part of the clutch is taken no harm is done either *provided the bird deserts*, except that the eggs left are wasted. If, however, the bird does *not* desert the obvious consequence must be that a smaller family than ordinary is reared.

During the last few seasons I have spent many weeks on Lundy, and the result of some of the observations made there have tempted me to write this paper. The island is the breeding resort of many

thousands of birds, the most numerous being Guillemots, Puffins, Kittiwakes, Razorbills, Herring and Lesser Black-backed Gulls more or less in the order named. The Herring Gulls commence to lay with May, the Razorbills three weeks and the Guillemots a month later, so that young Gulls are hatched and hungry when the eggs of the others are fresh. What forms their chief item of food? Fish during May is more or less scarce so the birds must perforce turn elsewhere for sustenance for their progeny. Young Gulls, if handled will generally bring up their latest meal and this, if examined will almost invariably be found to consist of an unpleasant looking mess freely interspersed with small pieces of the eggs of Guillemots and Razorbills—chiefly the former, owing, no doubt, to their being as a rule the more easily accessible. Herring Gulls are ever on the alert to snatch an unguarded egg. With my own eyes I have seen a recognizable bird take no less than seven in under half an hour and on the cliffs are regular feeding places where hundreds of empty broken egg shells may be seen lying in heaps. The following simple sum gives an alarming result. Take the number of breeding pairs of Herring Gulls as two thousand (a very low estimate). Take the feeding season for their young as thirty days and allow one egg a day to each adult. Four thousand Gulls at an egg a day each for thirty days gives us a total of one hundred and twenty thousand eggs. Add to this the damage done by Great and Lesser Black-backs, Crows, Ravens, Rats, and accidents consequent on the clumsiness of the birds themselves, and it may safely be assumed that 150,000 eggs are destroyed yearly *on Lundy alone* by more or less natural causes. The actual total is, in all probability, fully a quarter of a million. If every collector in Great Britain were to work hard and “filch” every egg he could get at by fair means or foul not a tithe of that number could be taken in a season.

For many years Herring Gulls' eggs have formed a large proportion of the food consumed by the Light-keepers and others on the Island, to whom fresh meat of any kind is a welcome and wholesome luxury. This has now been stopped owing to the ignorant, though doubtless well-meaning interference of a few self-styled “bird enthusiasts”—all of whom, incidentally, take away “just one or two eggs as a memento.” The natural and inevitable consequence must be that the Herring Gulls will increase enormously and the Razorbills and Guillemots suffer in proportion until their probable extermination—a lamentable result which may already be laid

at the doors of the "Protectionists" in more cases than one. As a matter of fact, in spite of all the R.S.P.B. may say to the contrary, Lundy does not and, without special legislation, cannot come under the laws relating to the protection of birds in Great Britain, so there is still some hope left. And it is not only our rarer birds that are threatened.

Last year (1922) was the first in which the protection of Lapwings was enforced in Somerset. On an estate of some 5,000 acres well known to the writer, the result was that during the summer never had so many Lapwings been seen in the locality. This spring never had so few been known to nest—the inevitable result of over-stocking—and the eggs of the majority of those few were destroyed by roller, plough or harrow. The police do their best to assist the R.S.P.B. but very few of them have any knowledge of ornithology. One conscientious constable informed me that the *three kinds* of birds he was most concerned in protecting were the Lapwing, the Peewit and the Green Plover. Had he been stationed further north and east his attention would doubtless have been claimed by three other kinds—all equally rare—the Thick-knee, the Stone Curlews and the Norfolk Plover. A farmer who has land in Wiltshire and Somerset may take Lapwings' eggs from one of his fields but not from the one next to it. Was ever anything so utterly futile?

An impassioned appeal by a gentleman at a recent meeting of a well-known Natural History Society may be mentioned. The appeal (for funds for watchers) was earnest and convincing. Brean Down and the protection of a pair of Ravens there was particularly mentioned, and financial assistance might well have been forthcoming had it not been that many of those present were aware that the Ravens' eggs had been taken a few days before. The fact that this nest had been robbed had caused universal indignation and was a common topic of conversation and knowledge except, apparently, to the R.S.P.B., whose particular business it would seem to be. Have dozens and dozens of eggs been consumed and otherwise disposed of by some of the Society's watchers? Ask the Light-keepers. I do not know and would never attempt to prove that a single one had been either sold or eaten—firstly because the accusation may be unjust, secondly because it is no business of mine and I hate the idea of separating a man from his job anyhow, and thirdly because I very sincerely believe that the action would be beneficial to the birds if not altogether honest.

Staying not a hundred years ago on a small estate of something over 1,000 acres bent on bird photography, the writer was surprised to receive a peremptory telegram from the owner warning him that, unless he immediately stopped collecting eggs, proceedings would be taken. To his somewhat heated reply he received, by return of post, a very handsome and sportsmanlike apology together with an assurance that the threat had been made only in consequence of incorrect information received. This is cited only as another instance of ignorant interference by some busybody which caused one man to lose his temper and another, very possibly, to feel a bit foolish.

Now one word of warning to collectors. Whatever else you may do, however much you may be tempted to infringe the law, however "careful" you may be, always bear in mind the fact that, thanks to the R.S.P.B., a heavy penalty attaches to the taking of Puffin's eggs *in Staffordshire!*

Nobody could be more earnestly in favour of Bird Protection *if properly managed* than the writer; but until the present lamentable system is utterly and absolutely eradicated and a fresh Association formed, and run on lines approved of by competent *Field Ornithologists*, our birds must continue to decrease. Let them be protected by all means; but let the regulations necessary for their protection be drawn up by people who know something about it, and let those regulations be enforced. Until that day the prayer of many of the birds must be "Protect us from our protectors."

LEWIS R. W. LOYD.

THE 'WOOD WARBLER.

Phylloscopus sibilator.

Mr. H. W. Wisden has sent us some very interesting notes on his observations of the nesting of this species in Surrey. He finds that the female is often to be found "anything from 50 to 400 yards away (from the male) and, on the whole, is rather silent unless the nesting site is approached too closely . . . " when "she will betray it by uttering her sad note more quickly."

He has generally found that "A dull morning after rain seems to be a very favourable time for building, and on such a day the work is carried on feverishly. Possibly when the grass is wet

"it is more easily woven into the domed nest which, at the best of times, is a very flimsy structure." In several instances he has found the cup of the nest made almost entirely of needles from larch trees.

"This bird does not take very kindly to the Cuckoo, for the placing of the Cuckoo's egg in a nest is sufficient to make the Wood Warbler forsake it, and from the number of Cuckoo's feathers around the nest in which I found an egg in 1920, I should say that the Cuckoo must have had a very bad reception."

He does not think that a second brood is reared unless the first meets with some mishap.

"There appear to me," he continues, "to be many more males than females, judging by the few females seen or heard, whilst the males are to be heard singing in all kinds of suitable places throughout the summer months. During the present season there must have been twice as many males as females for in one small wood I heard no less than six males singing within a very short distance of each other, yet the most thorough search failed to reveal more than three females, and in another small coppice there were four males and so far as I could ascertain there was only one female there. In arriving at this conclusion I have carefully taken into account the habit the male has of pitching his singing site some considerable distance away from that chosen for the nest."

A BIBLIOGRAPHY OF BRITISH ORNITHOLOGY.

By H. KIRKE SWANN, F.Z.S., M.B.O.U., etc. (London: Wheldon & Wesley, Ltd. 5s. net).

This handy little reference book, which must have entailed an enormous amount of work, will be welcomed by those who are unable to keep pace with the constantly changing names of even our commonest species. No doubt the process will some day reach finality, but year after year old scientific names are dug up and made to serve in lieu of the names with which we have become familiar. Mr. Swann's work will show exactly when each species acquired its earliest scientific name.

First we have a list of the generic names employed and the dates when they were first so used, with the reference to the work in which

such a name was published. Then follows a list of species and sub-species similarly treated, and which Mr. Swann calls a "Chronological List of British Birds." Finally there are lists of generic names discarded and specific names discarded with their correct equivalents and the dates for them.

THE DARTFORD WARBLER.

Mr. C. J. BELLAMY writes :

It may interest you to know that I have examined a good many nests of the Dartford Warbler this season containing both eggs and young ; but neither this year, nor in previous years, have I found a nest containing 5 eggs or 5 young. My experience is that the usual set is 3 or 4, and you find more threes than fours with the early nests.

BREVITIES.

THE NEW PROTECTION BILL, 1923.—Mr. Carter's trenchant criticisms of the Wild Birds Protection Bill, 1923, which appear in this issue, may very likely be for many of our readers the first news of this projected measure. Why is it, one wonders, that the authors of this Bill have so little regard for the protection of the adult rare bird *at all seasons* and such an irrational view as to the relative importance of preserving the eggs. We would like to refer them to the Mosaic law on the subject as laid down in Deuteronomy XXII, 6, 7: "If a bird's nest chance to be before thee in the way "in any tree, or on the ground, whether they be young ones, or "eggs, and the dam sitting upon the young, or upon the eggs, thou "shalt not take the dam with the young : but thou shalt in any "wise let the dam go, and take the young to thee ; that it may be "well with thee, and that thou mayest prolong thy days." Moses, whose vision was so clear in regard to all the basic facts of life, knew the many chances against an egg or a young bird reaching the adult state, but he appreciated the fact that the dam was to be safeguarded always, for upon her devolved the duty of continuing to produce offspring. The modern oologist knows that it has been conclusively proved that a hen bird will make good the loss of her eggs as many as six times in succession although, normally, she

would, if left unmolested, produce two layings at the most. This is not a plea for the justification of any wholesale robbery of nests but for a more rational treatment of the subject by our legislators. It is no secret that one or two prominent ornithologists have collaborated with the peers responsible for the Bill, but their advice has been mainly sought, it is imagined, in regard to the names of the species most needing protection. One of these gentlemen was, however, able to get the insertion into the Bill of a clause providing against the importation and acclimatisation of foreign birds without special sanction. In view of the lamentable results following the introduction of *Passer domesticus* into other countries, not to mention other less prominent mistakes of this kind, this is a good provision. The Bill will, in due course, have to pass through the House of Commons, and subscribers of this paper should communicate with their Members of Parliament with a view to securing some modification of the clauses it contains.

EGGS OF THE RAPTORES.—The further notes on the eggs of the Raptores, which appear in the present issue, might at first sight seem to exhaust what is known on this subject. We are still hoping, however, that Mr. Stuart Baker will describe for us some of his very rare Indian eggs of this group, and that some prominent collector in the New World, such for instance as Mr. Parker Norris, will tell us of his rarest types.

SINGLES AND PAIRS.—How often it happens that a very fine type of even some common species finds its best expression in a single or a pair. It may be that a bird whose condition at the time of laying is not normal lays abnormal eggs and not a full clutch.

Curious types of eggs may result from such causes—one can only guess—but happen it does, and too many collectors scorn to give singles and pairs room in their cabinets. For our part, we find ourselves in accord with some of the foremost oologists of the time in our appreciation of the pair or even the single if it illustrates an outstanding type, though naturally we would prefer that it had been a full set.

RUSSIA.—Oologists no less than members of the commercial and financial world always have an eye turned towards Russia, and the news that has come through quite recently is better and better. A new currency is being established with a backing of gold, trade is being encouraged, and, following a good harvest, conditions are

very much better than they have been at any time since the revolution. What is more, eggs have been coming through again, and every oologist knows that Russia, North Russia especially, is a prolific field for some of the best eggs on the British List, not to mention others. No doubt it will be some time before foreigners will care to travel in Russia and to make expeditions comparable to those of Messrs. Seeböhm and Trevor-Battye, but the time is not so far off as we thought even a month ago.

SCRIBED DATA.—We were recently looking over some of the eggs collected by Capt. Pitman in Palestine and Mesopotamia and elsewhere. Surely no oologist ever collected so carefully or made such meticulous data! Some of our friends in the U.S.A. would consider his eggs too much "scribed" upon to rank as first-class specimens, but Capt. Pitman's eggs will carry their records upon them as long as the eggs are intact, and I hesitate to mention the sum that was offered even for a rare egg collected by him that was broken completely in two! But many collectors, even in the States, are coming round to see the advantage of the method, and I would like to remind the others that I have seen eggs from the States bearing a large number of almost illegible pencil numbers only one of which figures on the data ticket. There is a "Field No.," a "Data No.," and eke a "Cabinet No.," and in more than one case we have received a set with a wrong data ticket on account of the very natural confusion resulting from the use of all these numbers. With eggs scribed like those we have mentioned above this could never happen. What one marvels at is the patience and the labour entailed and that in a climate like that of Mesopotamia and Palestine.

CARRIGER, HARLOW AND OTHERS.—We had welcome news recently of some old correspondents in the States where they have a way of getting into the wilds for a matter of a year or more and then answering letters that have accumulated in their absence. We do like to keep touch with everybody, whenever possible, and to know where they are and what they are doing or hope to do. Mr. Harlow has been in Northern Alberta and, if he can find time, will write us a record of what he has done, which is well worth the telling. Mr. Carriger hopes soon to tell us quite a lot concerning the nesting of the Californian Pine Grosbeak. Mr. Pemberton has left Oklahoma for San Francisco, and in the interim spent some time on the Mexican border with most satisfactory oological results.

WEAVER BIRDS AND FINCHES.—Mr. Stuart Baker tells us that the forthcoming Hand-list of the Birds of the world will group the Weaver Birds and the Finches in one family. Long ago Dr. Reichenow took the Sociable Weaver Bird, *Philetairus socius*, from the Weavers and placed it among the Finches.

THE OXPECKERS.—Mr. E. V. M. Lewis, in a letter just received from Natal, says he has again seen one of these elusive birds. "It was perched on the withers of a horse I was driving with several " others. It clung on to the mane with its claws and just raised " its head over the horse and kept an eye on me. When I went " round to the other side of the horse (about 25 yards off) it would " hop back again to the opposite side of the horse, still maintaining " its grip on the mane, and always keeping the horse between it " and me. It allowed me to drive the horses into the kraal while " still remaining perched on the animal, and later flew away. " It was of the Red-billed variety, *B. erythrorhyncha*. I recently " had a chat with a resident of this locality, who is--by the way—" no ornithologist, regarding Oxpeckers. He said that some 16 " year ago there used to be a great number about here and they used " to nest in his cattle kraal, and their nests and eggs were as common " as any other bird's. He is not mistaken in this, I feel sure, as " many natives state that these birds were very common then, but " that since East Coast Fever broke out amongst the cattle here and " the cattle had to be dipped in poisonous water to kill the ticks, " these birds have disappeared. This may have been due either to " the fact of the ticks on the animals (and on which these birds " feed) becoming poisonous, and thus in turn poisoning the birds, " or that the killing off of the ticks has made them so scarce that " the birds have gone elsewhere to seek their favourite food."

NESTING OF THE CURLEW SANDPIPER.

One or two subscribers having asked where information as to records of the nesting of the Curlew Sandpiper could be obtained, we have referred them to Miss M. D. Haviland's too little-known work, "A Summer on the Yenesei," published by Messrs. Arnold. We believe the book can still be obtained from the publishers at the published price of 10s. 6d., but, for the benefit more particularly

of our subscribers overseas, we quote the following extracts as to the Curlew Sandpiper :—

“ On 6th July, as I was returning from a long round over the tundra that lay in the northern angle of the Yenesei and Golchika Rivers, all at once I saw a little rufous curlew, which was standing on a tussock about twenty yards away, watching me quietly. When I stopped she flew away, but soon alighted again and looked at me. Full of excitement, but still rather sceptical as to the likelihood of finding eggs, I lay down and watched her, but at the end of an hour and a-half I could come to no conclusion, for the bird only strolled about and preened herself nonchalantly. I was not even certain of her sex, and her solitude and her quiet behaviour made me doubt whether, after all, she might not be a non-breeding bird. Nevertheless, I marked the place and turned homewards, meaning to come back next day. On the way I saw two more Curlew Sandpipers on a high slope of the tundra, but they were very wild and would not permit a near approach.

“ On the morrow I turned out early and tramped over eight swampy miles of tundra. The second pair of Sandpipers were not to be seen, but the first bird was still pottering round the same spot. To-day she was a little more demonstrative, and flew about uneasily. Once she uttered a sharp, anxious note, ‘ Wick-wick-wick ’ two or three times repeated. By this time I was convinced that the nest was close at hand, but it was difficult to locate it ; for although the bird could dodge me successfully enough behind tussocks of moss only six inches high, my person unfortunately was too bulky for these, the only available hiding-places. The ground was on a very gradual slope. On the right hand and on the left were two small tarns, still covered with blue ice. In the distance grazed some herds of reindeer, and once a Samoyede sledge glided swiftly over a ridge. Heavy drifts of snow still lay in the sheltered hollows, and the sleet showers that came slapping over the tundra made me glad to wrap myself up in my Burberry coat.

“ The bird had whirled away round the tarn at my approach, so I hid myself as well as I could behind a tussock, and settled down to wait for her return. Twenty minutes passed—half-an-hour. ‘ It’s time she was coming back,’ thought I, and turned my head carefully to reconnoitre. And lo and behold, not

“ thirty yards behind, the Sandpiper stood and studied me contemptuously! She had been watching all the time. ‘What a fool!’ doubtless would have been her comment if she could have spoken. It is no use to try and gull the waders: up to a certain point I believe they can almost see you *think*!

“ I retired abashed to another hiding-place about fifty yards further up the slope. The bird at once showed her appreciation of this move by flying towards the spot where I had first seen her. She was so small that it was very difficult to mark her as she tripped between the tussocks. When I thought that she must be settled on her eggs, I jumped up quickly. She took wing at once, but when I went to the place whence she had risen, there was no sign of the nest. This happened twice, but as she returned to the same spot each time, I knew that the treasure was there all right, and that patience would win it. The great difficulty in marking down nests on the tundra is the absence of all landmarks. You settle exactly in your own mind where the place is, and then note the position by means of some hillock or grass tuft on the sky-line. This mark looks enormous through the field-glasses, and you think that it will be impossible to mistake it. When you look for it with the naked eye you are not quite so sure; it may take a minute or two to pick it up again. Then you stand up, and away goes your bird—and your landmark likewise, faded from the sky-line, back into the tundra. I marked the bird down by a dodge that I used when looking for Grey Plovers’ eggs under similar circumstances, and which is described elsewhere; but each time that I flushed her, she seemed to jump up from a different place. She was so little and so nimble that she could run over the moss for some yards before she was seen. The next time I gave her ample time to settle down, and lay still in the wet, sucking lumps of sugar until I nearly fell asleep. Then all at once a Buffon’s Skua came overhead, flying low in the squally wind. I snatched my gun and shot him as he flew by, and as he fell I saw the Sandpiper spring up from a spot where I had marked her once before. I left the Skua and ran up to the place. The bird began to call again, and drooped a wing to decoy me away. Half a minute’s search and there was the nest at my feet. It exactly answered to Mr. Popham’s description—a little depression in the moss, of an apple’s diameter, and deeper than the nests of most of the

“ waders. The four eggs, greenish in ground colour, were much
“ blotched with umber at the larger end, like those of a Snipe.
“ The nest was so narrow and so deep that, as they lay, they were
“ tilted almost vertically, with their apexes pointing downwards,
“ and the blunt mottled ends uppermost, flush with the surround-
“ ing brown tundra. In measurement they average 35.1×25.1
“ millimetres. Compared with those taken by Mr. Popham, my
“ eggs are less distinctly marked, and the blotches are more blurred
“ and confluent.

“ The discovery of this nest so close to Golchika encouraged
“ me to search the country further, and, although I found no more
“ eggs, I was fortunate enough to secure specimens of the young
“ in down, as will be told in a future chapter, and also had the
“ opportunity of observing the bird's behaviour throughout the
“ summer.

“ As the result of these observations, I came to the conclusion
“ that this nest was not in a very typical position. Judging by
“ other breeding-grounds that I located later on, I should say that
“ characteristic Curlew Sandpiper ground was the slope of the
“ dry, open tundra, especially where the reindeer moss was more
“ or less broken up by tufts of grass, and where the bird could
“ have an uninterrupted view of the surrounding country.”

DOUBLE BROOD OF REED WARBLER.

Towards the end of May, 1922, I found a Reed Warbler's nest containing four eggs. A Cuckoo deposited her egg in this nest removing a Reed Warbler's egg at the same time. I removed the Cuckoo's egg, leaving the three remaining Reed Warbler's eggs to hatch. Two eggs proved to be unfertile, but one youngster was duly hatched and reared. The same pair of birds produced two further eggs in the same nest which contained the two addled eggs, and successfully hatched and reared the young from this later laying. This is the first occasion of which I have known a Reed Warbler to have a second brood after successfully rearing the first. It is a common thing for a Reed Warbler to rebuild after having had a first nest destroyed, the second nest being built with the material from the first nest and usually but a few feet away from the destroyed nest. In this case no second nest was built, the birds using the first nest for the two broods.

GEO. J. SCHOLEY.

THE OOLOGISTS' RECORD.

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[December 1, 1923.

AN ACCOUNT OF THE GANNETS ON GRASSHOLM ISLAND, OFF PEMBROKESHIRE.

By CAPTAIN VIVIAN HEWITT.

Grassholm Island being at present the only breeding station of *Sula bassana* on the English or Welsh Coasts, a description of my visit there and its colony of Gannets may prove of interest to readers of *The Oologists' Record*.

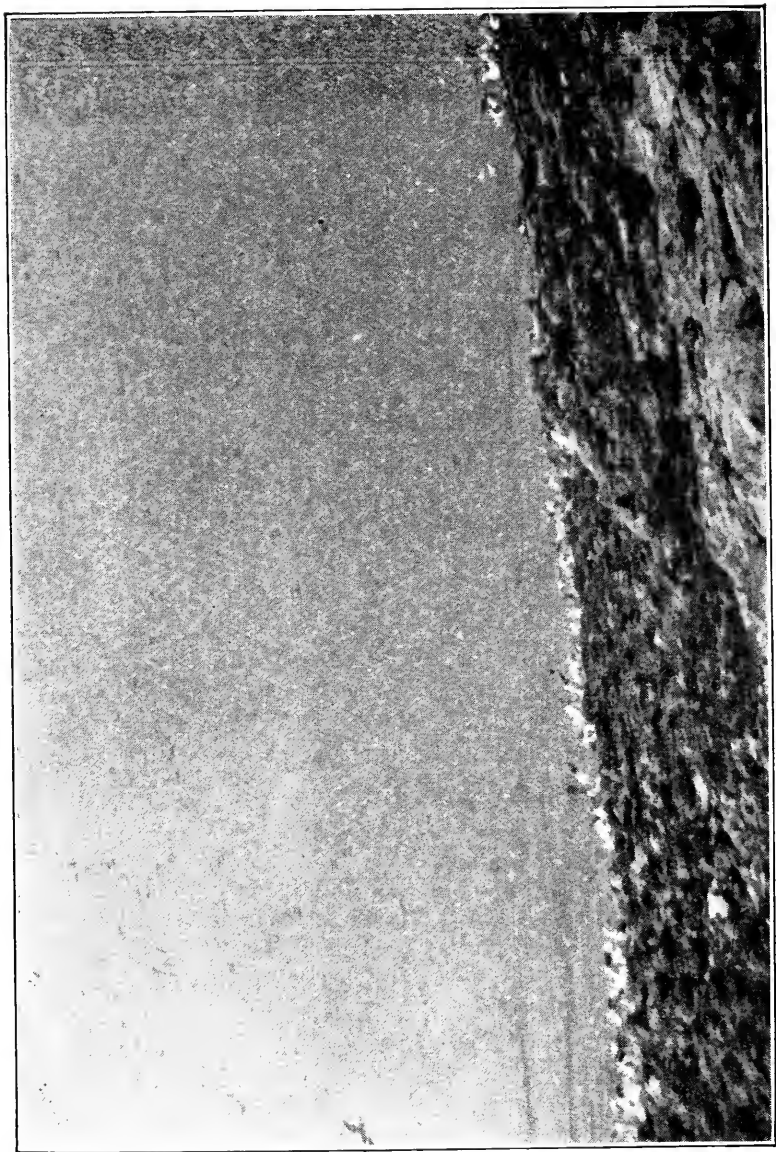
I made the trip on 30th May, 1922, in a small motor launch, accompanied by my mechanic, and we towed a small light boat behind to enable us to land. We were at the time situated on the coast of South Wales, about 70 miles from Grassholm Island by sea.

Leaving our base at 9 a.m. on 30th May, well supplied with food and water, we steered a compass course down the Bristol Channel and, helped by the tide, soon lost sight of land in the haze.

It was one of those hot, lazy days when the sea itself appears to be almost asleep, and one could see here and there small parties of *Uria troille* and *Alca torda*, who, on our approach, would promptly dive, only to re-appear far astern after we had passed the spot.

From out of the haze at regular intervals came the bellow of the powerful siren on the Helwick Light-ship, sounding like some prehistoric monster, warning the Bristol Channel shipping of the treacherous bank which runs up to Porteynon. As the time wore on it grew fainter and fainter, gradually dying away to a mere whisper as we proceeded on a West-Nor'-West course. Two hours later we picked up Caldy Light-house, about a mile and a-half away, broad on the starboard bow, and from there to Skokham Island had the coast in view practically the whole way. A number of *Rissa tridactyla* greeted us here, and we changed our course to Nor'-West by West.

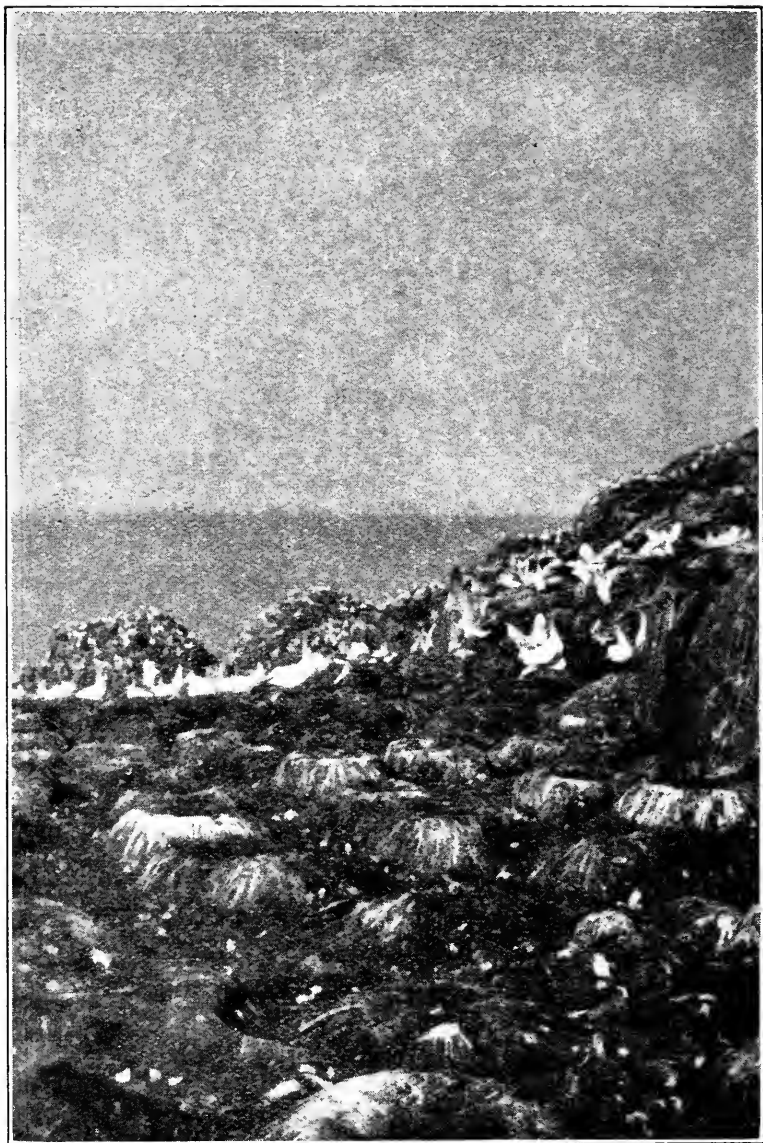
Soon Skokham Island faded away astern in the haze, and the
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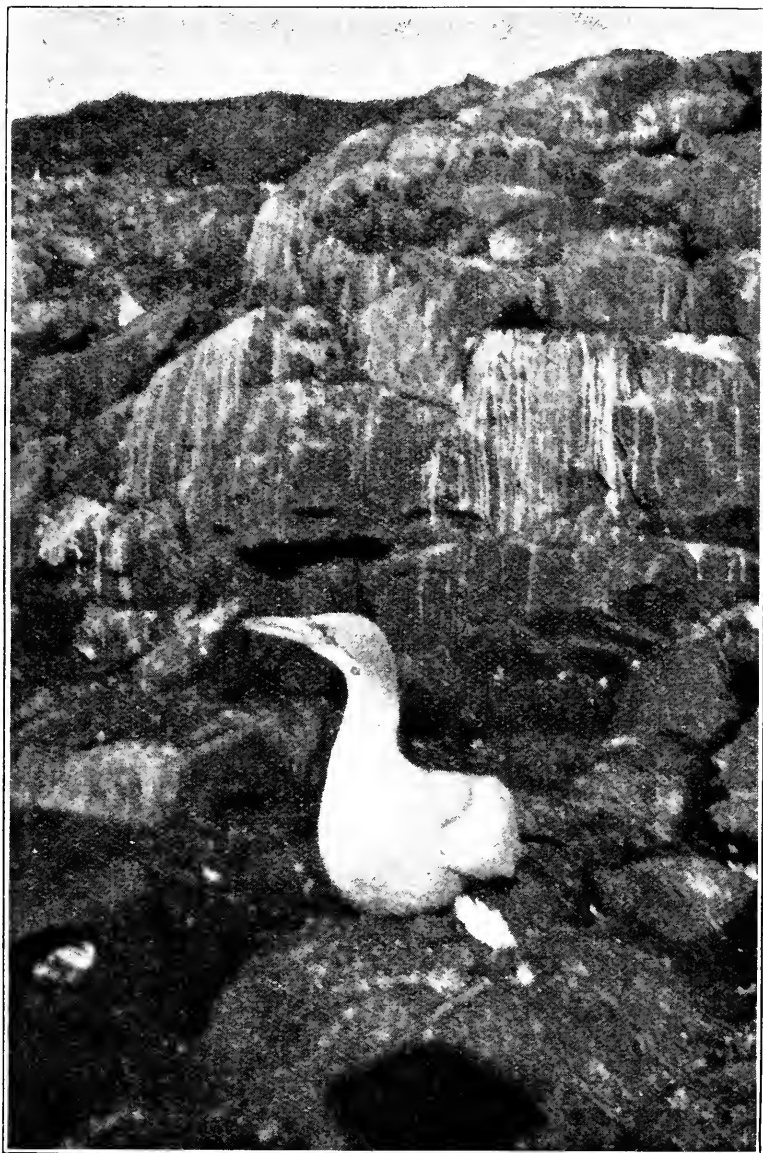
Gannets on Grassholm Island. Note the black specks in the sky, which are flying Gannets. May 30th, 1922.



A close-up view of the mounds or nests of the Gannets, looking N.W. Grassholm Island, May 30th, 1922.



A small portion of the "Gannetry," showing nests and birds, looking
N.W. Grassholm Island, May 30th, 1922.



Sula bassana on nest. Grassholm Island, May 30th, 1922.

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sound of the crying Kittiwakes grew fainter and fainter. Thirty-five minutes later a faint outline appeared ahead of us, which grew bolder as we approached, and there stood Grassholm Island.

It made a fine picture, with its green grass-covered top and bold rocky sides sloping down steeply to the sea.

As we approached we could see the Gannets wheeling and fishing, sending up jets of spray which sparkled in the sunlight, as they dropped like stones into the water.

Looking astern we could see nothing of Skokham Island or the mainland, everything being blotted out in the haze.

Out here the sun was shining brilliantly, which changed the whole aspect of the place.

A number of Grassholm's Town Councillors came out to welcome us in the form of *Fratercula arctica*, but no sooner had these little Puffins given us the freedom of the city than they disappeared from sight. However, we discovered three grey seals fishing on the Western side of the island, and here, after great difficulty, we landed in a small gully at 4.15 p.m.

We had hoped to land not later than 3 p.m. just before the turn of the tide, or what is known as "slack water," when the heave and swell of the sea is at its minimum.

Owing to a strong current off Skokham Island, which forced us into the Milford Haven bight, we were an hour late in landing, and, although the gully where we made fast was on the lee side of the island, the swell was tremendous.

We made a line fast to the bow and stern of the launch and dragged the small punt up the rocks out of harm's way. Every fifteen minutes or so we had to return to the launch and take in the slack of the lines as the tide rose. To anchor off here was impossible. The least depth is forty-eight feet, with a rock bottom, and the whole place is beset with tide-rips and overfalls.

The island, which is uninhabited, lies about ten miles to the North-West of Milford Haven, being about twenty-one acres in extent, and one hundred and forty-six feet high. It was till recently the property of Lord Kensington, who let it to Mr. J. Neale, and everything possible was done to protect the birds.

The bold, rocky sides of Grassholm slope steeply down to the water, and are covered with slippery seaweed up to the flood-tide

mark. The summit of the island is covered with thick grass and honeycombed with the burrows of Puffins. It is only with the greatest difficulty that one can land, and unless the sea is like a pond, it is out of the question, owing to the heavy swell and treacherous tide rips in the vicinity.

The Gannet colony is on the North-West end of the island, which is precipitous, and here they breed, some of them on a rock named the "West Tump," and others along the edge of the cliff ranging from about eighty feet to one hundred and twenty feet above the sea. The nests were composed mainly of seaweed, occasionally a few small tufts of grass and bits of stick being added, the whole mass cemented together with the birds' droppings. These nests formed mounds ranging from a few inches high to over a foot where the birds had built on the same site year after year.

The majority of them were very sparingly lined with fresh, dry seaweed in an attempt to form a slight bed for the single egg to lie on. Others appeared to be merely the old foundations of nests with no attempt made at re-lining, being simply a slight hollow trodden down, in which the egg was deposited.

I found eggs in all stages of incubation, from fresh to chipping out, and young chicks ranging from just hatched, when they are both naked and blind, to a fair size covered with down. The stench and uproar of this colony are indescribable. Masses of putrefying fish lay about in all directions, and the smell was almost overpowering. As a great many nests were some distance from the edge of the rocks and placed on soil, the accumulations of rotten fish and excretions had formed a deep crust. Owing to the heat of the sun, the top of this had baked hard, and when walking one often broke through, going calf deep in the putrefying mass. The birds would all rush to the edge of the rocks and get on the wing as we walked through the colony, circling round and settling down again after we had passed by. Putting my estimate at a low figure, there must have been at least eight hundred to one thousand pairs of Gannets breeding, and the total number of Gannets on the island I estimated at about three thousand.

The eggs very soon become soiled and stained, but when fresh the chalky deposit on the shell is frequently smeared with blood.

One nest which I observed contained two eggs, these no doubt



Young chick (*Sula bassana*). Grassholm Island, May 30th, 1922. ;



Sula bassana leaving nest. Grassholm Island, May 30th, 1922.

being deposited by different birds, as I found another nest containing a fresh egg and one chick a few days old.

A series of these eggs vary in shape from thin to broad elongate ovate, and from thin pointed ovals to broad pointed ovals.

In size they range from 59 mm. to 70 mm. in length and from 30 mm. to 35 mm. in diameter.

As far as my observations carried me, the Gannet when fishing does not close its wings till just before striking the water. I watched many as they wheeled round the island and out to sea in search of food. The method employed was always the same—a steep glide with wings extended, closing them just before striking the water, the actual dive always being very clean and neat. The birds when re-appearing bob up out of the sea like corks, owing to the buoyancy of their air cells. This re-appearance is very marked in the Gannet, and quite unlike the re-appearance of the Guillemot or Razorbill. One might almost imagine that the Gannet had been shot to the surface from beneath the waves.

Very little appears to be known regarding the early history of Gannets on Grassholm Island. It is presumed that a fair number have come over from Lundy Island forty-five miles away, which they forsook in 1909 owing to constant persecution, though in 1907 and 1908 every effort was made at Lundy to induce the birds to return to their historical haunts, and the Bird Watchers' Committee took the matter up.

However that is as it may be, and no Gannets have been reported to my knowledge as breeding on Lundy since 1909.

Grassholm Island, on the other hand, appears to be doing well, one reason being that it is uninhabited and the other that it is a long way out and very difficult to land there. Very few young Gannets were reared in 1905. In 1906 about one hundred to one hundred and thirty got off, and in 1907 about three hundred. The weather in 1907 during the breeding season being very bad, fishermen and others were unable to land, and so the birds were unmolested. One old fisherman, named John Watts, could certify to Gannets on Grassholm for over forty years, while another very old inhabitant, named Williams, of St. Davids, remembered his father-in-law, Henry Bowen, telling him there were a few Gannets on Grassholm as far back as 1820. In 1886 Mr. M. D. Propert



Capt. Hewitt with young chick (*Sula bassana*). Grassholm Island, May 30th, 1922.

estimated the number of Gannets at 500, and in 1893 Mr. Robert Drane, of Cardiff, put the number of nests at two hundred and forty.

As far as I can gather, both parents appear to feed the young bird, but the time for my observations was all too short, and the westerling sun warned me that it was time to be on the move.

At 7.30 p.m. we got under way, and reluctantly turned our backs on Grassholm. Looking back we saw the racing tide creaming round Grassholm's rocky base, the sun bathing the rocks in its red glow, and above all the Gannets wheeling and fishing. It was a sight given to few to behold, and one which will live long in my memory. At 8.30 p.m. we were again off Skokham Island, and the crying Kittiwakes appeared to be settling down for bed like the sober-minded citizens they were. I think we envied them to a certain extent. We had still about sixty miles to run to our base, and in an hour the tide would turn against us. This happened at 9.30 p.m., and at 9.45 p.m., when off Linney Head, we were joined by a solitary Stormy Petrel. All through the night at intervals this little bird followed us up, flitting by in the gloom as we fought the strong current past Flimston Head, Elegug Stacks and St. Gowan's Head, where the cliffs come down sheer into the sea, with no hope of a landing place, and the tide runs like a mill-race.

The powerful light on Caldy Island seemed to mock us in our efforts with its winking eye, as hour after hour we slowly breasted the current.

At 3.45 a.m., 31st May, we were abreast of this light, and the tide had once again turned in our favour.

Some time after this the grey dawn broke, and as we picked up the Lightship a few miles from our base, the sky had turned to crimson. Finally, the sun, dispersing the sea mists, showed us our home Head, with its rows of sitting Guillemots, past which we roared with a flowing tide, and so to our moorings at 6.30 a.m., 31st May, after what was to me one of the most interesting trips I ever made in the study of Oology.

SCRIBED DATA ON EGGS.

By THE REV. F. C. R. JOURDAIN, M.A., M.B.O.U.

While one can only agree with the Editor as to the unsatisfactory nature of clutch marks *in pencil* on many eggs, may I enter an earnest protest against the practice of writing full details on the egg itself in ink? I have in my collection many such eggs with the scientific name, locality, date, number of eggs in clutch, and in some cases also even details as to the site, weight of the eggs, etc. ! Needless to say, one side of the eggs is hopelessly disfigured, quite unnecessarily. A key number carefully and neatly written *in ink*, to correspond with that on the accompanying data ticket, and the entry in the taker's diary, would have given all the information without spoiling the appearance of the egg.

There is, however, another and a more serious drawback to this method. Its only virtue is that when done in the field it prevents possible confusion in packing and prior to incorporation in the collection. But in the field, especially when pioneer work is being done in little-known or new country, it is often impossible to designate the species accurately. The examination of skins months afterwards may show that the bird in question belongs to a different sub-species or even species. Quite recently, in a world-famous collection, eggs of a species of Snipe, whose presence was quite unsuspected, were discovered by the examination of the skin of the parent bird, marked with a corresponding number as it was shot, from the eggs. What a disfigurement it would have been to find that the name of an utterly wrong species or sub-species has been indelibly fixed on the egg ! Fortunately, this was not the case, but I have recently seen, in at least four or five cases, eggs carefully and even meticulously marked with the name of a wrong species, and so permanently discredited through this unfortunate practice. In field work, and more especially in new or little-known districts, with rare exceptions (such as downy young), skins and eggs should not be marked with the name of the species, which should be added to the label (of a skin) or to the data ticket (in the case of an egg) when the collection is worked out.

EGG-COLLECTING.

By E. C. STUART BAKER, F.Z.S., F.L.S., M.B.O.U.

So much has recently been written on the cruelty and uselessness of egg-collecting that perhaps it will not be out of place to state in your columns the case from the point of view of the egg-collector who believes himself to be scientific and rational. Nor would I include in these terms the vast majority of those who collect, for, as one of our most famous ornithologists recently remarked, "Oologists can be counted on the fingers of one hand; collectors are countless." I would, however, include those numerous *collectors* who *try* to be *oologists* and who collect with some definite aim in view, and with the intention of adding something to the sum-total of human knowledge.

Much has been written by kindly people who, in a beautiful but complete ignorance of Nature and its ways, *think* that all birds' nesting conducted in methods other than their own must be cruel. In this category are those who encourage their own children to take one or more eggs from a clutch, leaving the remainder to the parent birds, and at the same time discourse on the cruelties of those who take whole clutches. But the man who knows anything about birds and their ways, and has not merely studied them from books, knows that the taking of one egg from a nest is the most cruel form of birdsnesting. If one or two eggs are taken, the hen bird will often hang about the nest for days, sometimes sitting, sometimes refusing to do so, and will finally desert altogether after the sitting furore has ceased. It is then too late to start again, desire has passed, and no young are raised. But if the whole clutch be taken the parent birds, in the great majority of cases, at once set to work to make another nest and to bring up other young.

In spite of all that has been written on the agony of birds deprived of their eggs, there is little, in fact, to support the statements. At the time the eggs are laid, and for some short time after, the one dominating influence in the bird is the desire for reproduction, first resulting in the laying of the egg and, secondly, in its hatching. This influence remains dominant until the chick is hatched, after which the reproductive desire gives place to the necessity for the provision of food. Once the young are hatched, doubtless birds do suffer to some extent if they are stolen, though even then they

do not suffer to the extent many people imagine. Birds will sit in perfect content in their nests containing some of the young, whilst other chicks, which have fallen from it, perish of hunger and cold before their eyes. Cuckoos, when hatched, expel their foster-brethren without protest from their foster-parents, whilst migratory birds, such as Swifts, etc., desert their half-grown young when instinct tells them it is time for them to migrate. Thus, the collector who uses discrimination may take eggs and yet cause little suffering to the parents, and certainly without any risk of decreasing the number of the species.

Even including the indiscriminate and ruthless collector, the wanton schoolboy and the ignorant rustic destroyer of all nests and eggs, the number of eggs taken or destroyed by man is infinitesimal when compared with those destroyed by Nature. On one occasion I was told by a watcher of a Ternery that he was afraid the Terns were being driven away by boys who were stealing the eggs. Enquiries elicited the fact that at the outside 40, say 50 eggs, had been so taken, but I found that all the early nests, some 150 to 200, had been destroyed by a flood; of the later nests some 300 to 500 had been destroyed by a later flood, whilst on the very day I left the place *all* the nests on the flats were drowned out in a gale, and I personally counted hundreds of drowned young and washed-out eggs thrown up on the line of *débris* marking the limit of the tide.

Nor was this all the birds had had to compete against. There was at least one stoat living close to the Ternery, rats were numerous, and, in addition to stealing eggs and young, killed many old birds on their nests. In this instance, therefore, where boys had stolen 50 eggs and *bonâ fide* collectors had, perhaps, taken 10 more, Nature had destroyed at least 2,000 eggs, besides destroying young and old as well.

Few people realize how appallingly destructive Nature is, but if they would only think for a few minutes it is easy to understand. For instance, a pair of sparrows in a year certainly lay on an average 10 eggs. If all these survived, and were hatched and reared, the next year there would be 50 Sparrows, the next 250, the third year 1,250, and in ten years we should have over 113 million Sparrows. As, however, Sparrows, when once they arrive at about a year old, probably average about five years more of life, only some two young

amongst five pairs need survive in order to keep up their normal number, *i.e.*, two young in every fifty, or 4 per cent. It will at once be said in reply to this that all birds do not lay 10 eggs a year, so let us take the case of Gulls and Terns, which lay only three in a clutch. What percentage of these have to come to maturity to keep the species up to its proper number? Every year enormous numbers of eggs are destroyed by storms, floods, vermin and other Gulls and birds, so that certainly on an average every bird lays twice, and many lay three and even four times. However, if we take six only as the average laid by each bird, we shall not err on the wrong side. Once having reached maturity, we know that Gulls and Terns are long-lived birds. For instance, a Tern which laid peculiar-coloured eggs year after year from 1900 to 1917 was then hale and well when killed by rats. It is probable, therefore, that once past the first year of their existence these birds average a life of some 12 years. In 12 years a hen would lay 72 eggs, and of these only two need survive to replace herself and the cock bird, *i.e.*, 2·8 per cent.

The only instances in which mankind can expedite the extinction or disappearance of a bird is when Nature has already brought the number so low that any additional factor may prove to be the last straw. Such instances in England as those of *Haliaëtus albicilla*, the White-tailed Sea Eagle, and *Pandion haliaëtus*, the Osprey, are proofs of this, whilst the Common Kite and Buzzard would have been further examples but that bird-lovers awoke in time to the fact that they were fast disappearing, and took measures to protect them, not only from human thieves but from other dangers as well.

Many birds have been driven from our shores which used to breed in these islands, such as the Ruff and Reeve and similar swamp-loving species, but this is not because of the vast quantities of their eggs taken by collectors, but because the conversion of their swamps and fens into fields of crops took away from them the places in which they loved to breed.

One severe winter will do more to destroy birds than generations of egg-collectors. Thus, during the winter of 1917-18 the British form of Dartford Warbler was almost wiped out. Now this little bird had, in a few places, been regularly farmed by certain egg-collectors. These men knew every pair breeding on the ground they

hunted, and each year all the first nests were taken, but in each case the second nests were left and, because the egg-collectors were egg-collectors, as well as bird-lovers and men of commonsense, they did their very best to help the Dartford Warblers to bring up their second broods and to keep their haunts secret from other invaders. There is no doubt that in some of these instances the greatest protection the Warblers had was from the so-called egg thieves. Year after year their numbers remained steady or slowly increased until the year of snow and ice, when nearly all went under. Now, however, our egg-collectors report each year an increase in the number of breeding birds, and doubtless soon their number will again arrive at its proper proportion.

Over-protection is, in many ways, much more destructive to our rare bird life than under-protection. If there is no protection, common birds are destroyed in far greater proportionate numbers than rare birds, but in over-protection the rare birds, generally weaker in some way, are ousted by the common ones. For instance, when the Black-headed Gull is over-protected, Sandwich Terns, Rosy Terns and others are gradually exterminated or driven away. If the number of Starlings is not kept down all the nesting-holes of Woodpeckers are usurped by them, and the Woodpeckers cannot breed. No given area can support more than a given number of birds, and if by protection we increase the number of common ones, then Nature will balance matters by decreasing the uncommon ones. Rare birds are rare merely because they are not so well suited in some respects as are common ones to fight for a living, and if this is admitted, as I think it must be, then commonsense tells us that indiscriminate protection must defeat its own purpose.

Unfortunately, many of our most prominent protectionists think first of the principles they have laid down for their guidance, and only secondly about the birds and beasts they wish to protect.

The principle I would ask Oologists to live up to is this: Never take an egg unless it is wanted for some definite purpose, and never encourage youngsters to take eggs unless they are in a position to teach them something about the eggs taken.

THE EGG OF MANTELL'S APTERYX

(Apteryx mantelli).

By GRAHAM RENSHAW, M.D., F.R.S.E., Editor of "Natureland."

The melancholy interest attaching to the flightless birds of New Zealand—now so fast disappearing under the attacks of introduced stoats—renders accurate description of their eggs highly desirable, and when one happens to possess a specimen that is no faded museum relic but a recent and fresh example, the duty of recording it becomes almost imperative.

It is, perhaps, the enormous size of the egg as compared with the parent, that makes the Apteryx so sluggish when on the eve of laying; the bird observed by the writer was certainly very stupidly tame, allowing herself to be handled, and when released merely standing as if stuffed, making no attempt to run under her straw coverlet, as they generally do. She had, in fact, been coming out in the daytime, which under usual conditions she never did. Shortly afterwards she laid an egg which weighed $11\frac{1}{2}$ oz.—not a great weight for the species, the maximum recorded by Sir W. Buller reaching $15\frac{1}{2}$ oz.

The specimen now before me measures five and a-quarter by four inches. It is markedly—most markedly—reptilian in shape, being elongated, with but little difference between the big and little ends; it also recalls the elongated, equal-ended egg of the Megapodes and Brush Turkeys. The Apteryx egg, however, is very different in texture from that of the Megapode, being of porcelain smoothness as contrasted with the rough egg of the latter; the shell in the Apteryx is delicately thin, glossy, and dotted all over with minute pits. At the large end there are a few tiny hair-like raised lines, also some half-dozen minute—exceedingly minute—papillæ.

Viewed through the blow-hole the inside of the egg is of a beautiful pink colour, and this is faintly perceptible all over the shell, even on the outside in a good light; one may compare it to the delicate tint seen in unblown eggs of the Dipper and other birds. Probably it is due to the presence of the lining membrane. Be this as it may, the eggs of the Apteryx are by no means of the dull white, green grey, or yellowish hue described in text-books, apparently carelessly recorded from faded indifferent examples.

WILD BIRDS PROTECTION BILL, 1923.

There was a slight error in our last issue. In Mr. G. N. Carter's letter, on page 55, the last line of the fourth paragraph should read: "if they had *not* had the opportunity."

This Bill will be shelved for the time being, of course, but all our readers who can influence members of Parliament should try and enlist their interest in securing its amendment, in the respects indicated by Mr. Carter, when it is reintroduced in the next Parliament.

THE BIOLOGY OF BIRDS.

By PROFESSOR J. ARTHUR THOMSON, M.A., LL.D. London: Sidgwick & Jackson, Ltd., 16s. net.

Professor Thomson has compressed into this fascinating volume all the important facts and theories concerning bird life, and these are presented to the reader in a literary style possessed by too few of our eminent scientists. Though the vast field indicated by the title is well covered, the author modestly expresses the hope that it will show what a great scope the subject still offers for further research and suggest to others "the length and breadth and height of the biology of birds." This hope will surely be realised, and we can imagine no bird-lover's library complete without it. An enumeration of a few of the fifteen chapter headings will give some idea of the range of subjects dealt with:—

- I. The Chief Characteristics of Birds.
- II. External Features Biologically Considered.
- III. Adaptation of the Bird's Skeleton.
- IV. The Flight of Birds.
- V. Food: its Capture and Utilisation.

The chapters dealing with "Courtship and Sex" and "Birds' Eggs" treat of their subjects at very great length, and show how complete is the author's knowledge of his theme.

Unlike so many of the academic ornithologists, Professor Thomson does not condemn or disparage oology.

"Enthusiasts on the subject of birds' eggs," he writes, "have invented the word 'oology' as the name of their science, and

Professor Newton, in approving of this, goes the length of saying that 'hardly any branch of the practical study of Natural History brings the inquirer so closely in contact with many of its secrets.' He refers to one of the scientific triumphs of the oologists—namely, discerning, from the eggs, what Huxley confirmed anatomically, the affinity between the *Limicolae* (Snipes and Plovers) and the *Gaviae* (Gulls and Terns). Eggs can be studied as scientifically as anything else, and they have the fascination of great beauty of form and colouring."

Very interesting are the pages dealing with the coloration of eggs. Summing up our knowledge of the problems presented by the egg of the Cuckoo, the author naïvely remarks: "But our ignorance far exceeds our knowledge of the Cuckoo, and most other things."

The book concludes with an able plea for the protection of birds and a quotation from Ruskin's translation of what Socrates said to Choerophon in regard to the Halcyon. Truly a book to read and re-read and to have by one for constant reference.

THE NATURAL HISTORY OF SOUTH AFRICA: BIRDS.

2 Vols. By F. W. FITZSIMONS. London: Longmans, Green & Co.,
25s. net.

At the first glance it is evident that this work is intended more as a guide for the agriculturist than for the serious student of bird life. This is regrettable, as there is such a need for more good books on the birds of South Africa.

The whole of the first volume consists of reiterated pleas for the protection of birds on account of their economic value, with lengthy reports of what is being done in other countries in this connection. But birds of no economic value get scant mercy from the author, for of the Mouse-birds—a most interesting group peculiar to Africa—he says they "may be written off as 'vermin,'" and he describes three methods of destroying them. Surely the toll these interesting little birds take of fruit is not sufficient to warrant their extermination. Again, of the Eagles, he writes: "The Eagles are not of much economic value to man," and he adds, with no expression of regret: "The larger Eagles will in time pass from the face of the earth."

The second volume is divided into three parts. The first 63 pages deal with the food of many species, showing which are useful and which harmful; the next 133 pages give descriptions of the better known species, their distribution, habits, and, in some cases, of their eggs; while the remaining 126 pages consist of a systematic, but regrettably incomplete, list of the birds of South Africa, with the addition of Dutch and native names for a good many.

Some of the birds are only dealt with in groups. Of ten species of Serin only four are described separately, only one Eagle is described, and, out of 36 species of Larks, we find detail only in regard to three.

The coloured plates, borrowed from another work, are excellent, but the very numerous half-tones appear to have been made from photographs of indifferently mounted specimens.

In spite of its defects as a guide for the nature student, the work should certainly appeal to a wide circle who desire an introduction to the bird life of South Africa:

TRACKS OF BRITISH BIRDS.

W. and A. K. JOHNSTON, LTD., Edinburgh, 4s. net.

These useful and instructive charts, mounted for hanging on the wall, should find a place in the gun-room of every large country house, in the bird-lover's sanctum, and the schoolroom. Accurately delineated and printed with care, the illustrations should enable even the uninitiated to name a bird from the print left by its feet on soft ground or snow.

WILD BIRD ADVENTURES.

By RICHARD KEARTON, F.Z.S., &c., Cassell & Co., Ltd., 5s. net.

Though this dainty little volume is ostensibly written for young people, there will be few experienced oologists who will not read it with the greatest pleasure. For Richard Kearton is never prosy, never dull, and every succeeding volume of his breathes the freshness of wild nature itself. The half-tones, mainly of birds at their nests,

are excellent. They are all good, but if we must particularise we like especially that of the hen Red-backed Shrike feeding its young, and the Yellow Wagtail on its nest.

His account of how a pair of Little Owls took possession of a rabbit burrow as a nesting site is only one of very many interesting experiences related in true Kearton style.

HIMALAYAN AND KASHMIRI BIRDS.

By DOUGLAS DEWAR. London: John Lane, The Bodley Head, Ltd.,
7s. 6d. net.

This useful work, which forms a companion to the bird volumes of the "Fauna of British India," is a most concise handbook. It deals mainly with the birds to be met with in the summer at the hill stations in the Himalayas and Kashmir.

Part I, which classifies the birds according to structural peculiarities, colour and habits, should enable any one to name a bird without difficulty.

Part II consists of a descriptive list of the birds, with brief reference to their habits. It does not, however, give any information as to nidification and eggs.

As Mr. Dewar naïvely remarks in his preface: "Paradoxical though it may sound, the value of this book lies largely in its omissions!" In a word, he has not cumbered it by including birds to be seen in winter or the very rare accidental visitors. Nor, in his description of a species, does he include details which are not easily observed, as such are more apt to confuse than to help the novice.

DISCOVERY OF THE NEST OF THE WANDERING TATLER.

We have it, on the best authority, that the nest of the Wandering Tatler, *Heteroscelva incanus*, has at last, after many years' search, been discovered in Alaska. We shall hope to publish full details of this most interesting find in a later issue.

NOTE.--Subscriptions expire with this issue and it is requested that they may be renewed.

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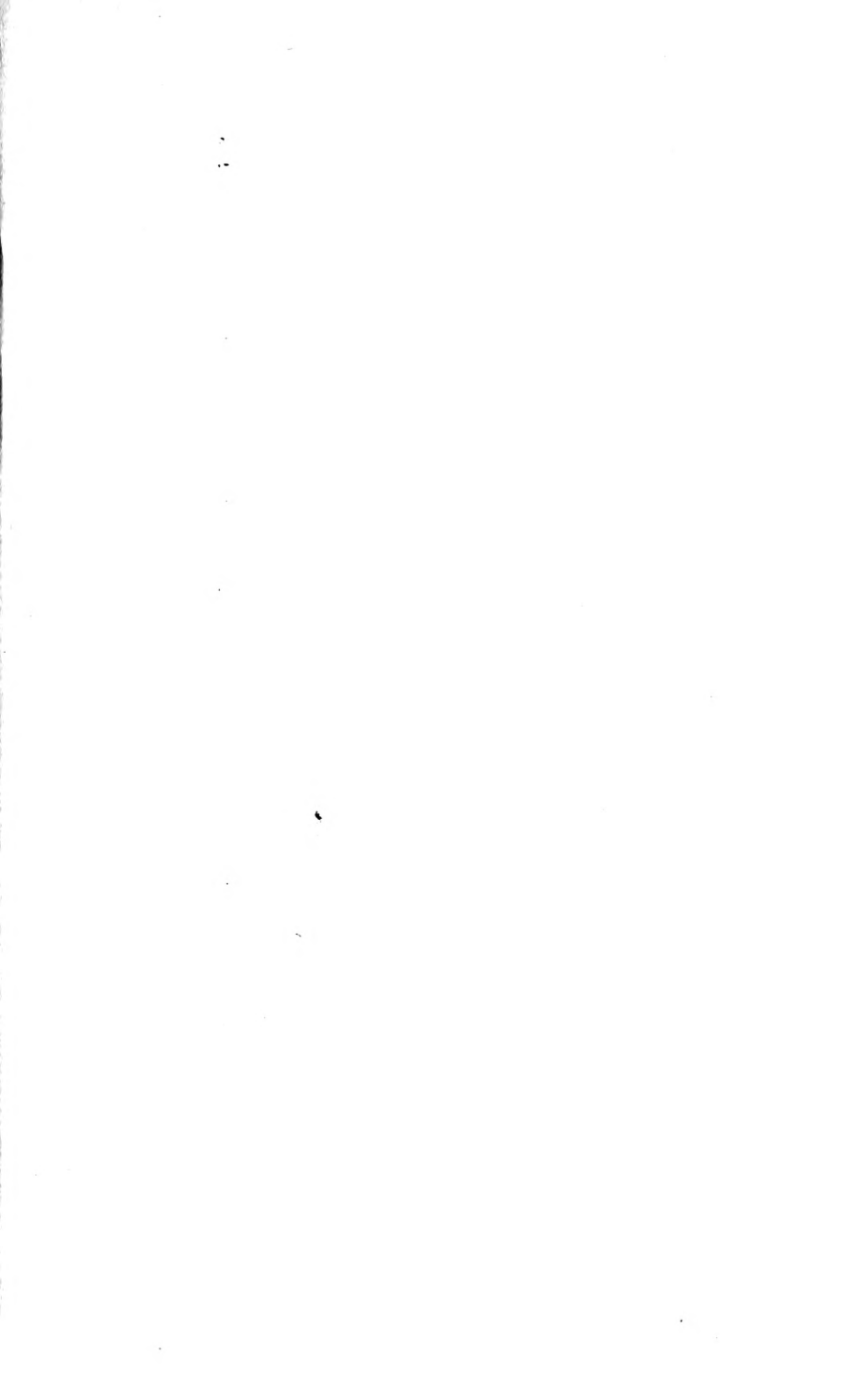
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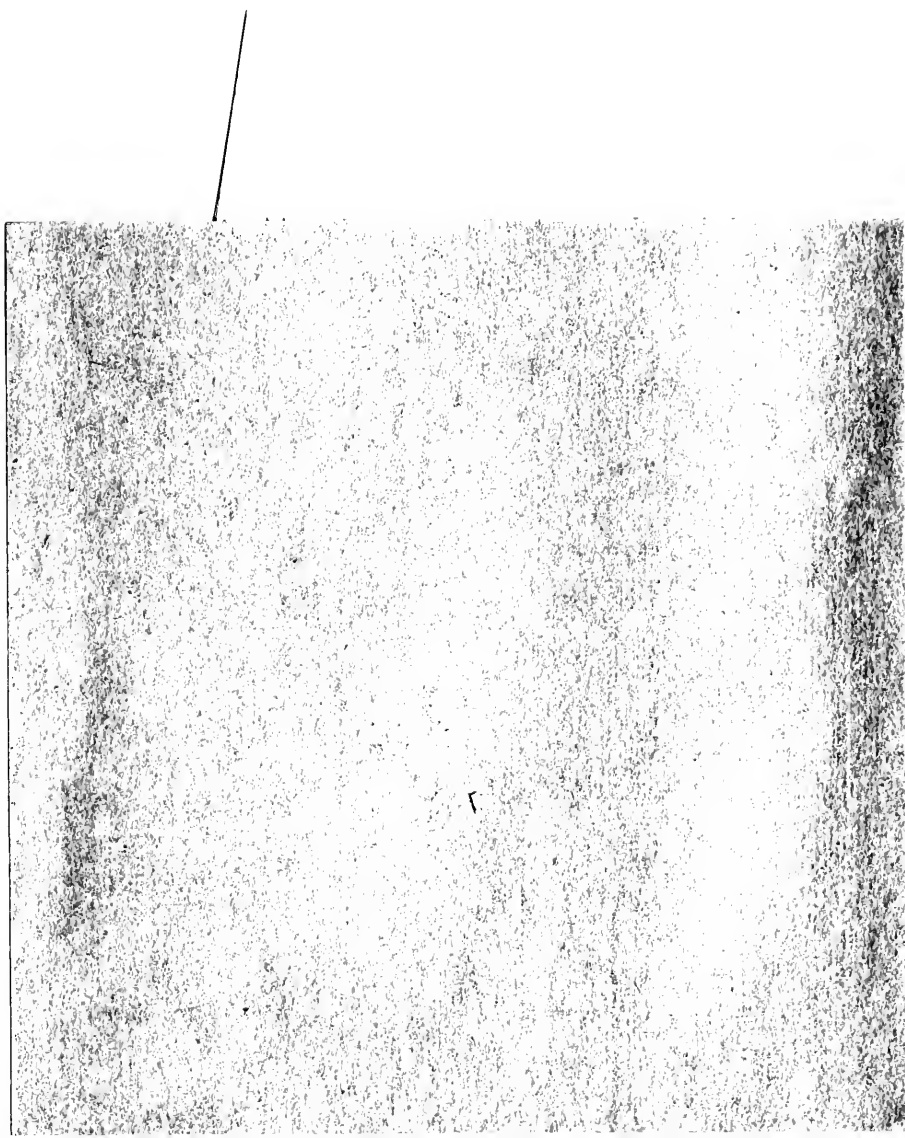
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